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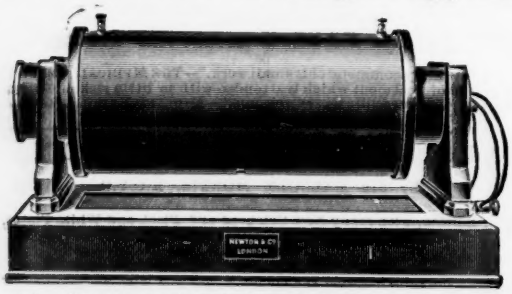

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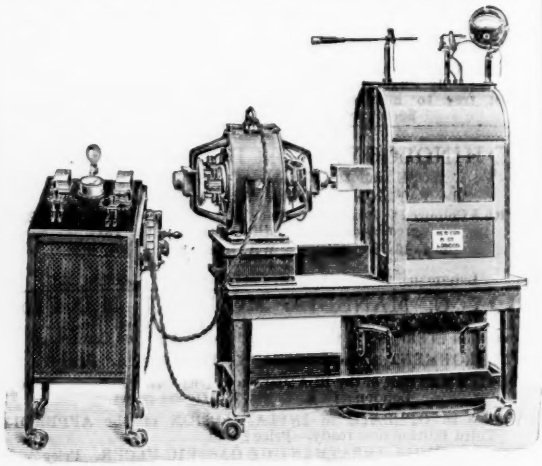

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The Lumleian Lectures
ON
ANGINA PECTORIS.

Delivered before the Royal College of Physicians of London

BY WILLIAM OSLER, M.D., F.R.S.,
REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

LECTURE III.[1]

Delivered on March 17th.

PROGNOSIS.

MR. PRESIDENT AND FELLOWS,—How well the introduction to the "Prognostics" fits angina pectoris! A very excellent thing is it indeed, Hippocrates says, for the physician to cultivate prognosis, and nothing so much inspires confidence as the power of foreseeing and foretelling in the presence of the sick the present, the past, and the future, and he will indeed manage the cure best who has foreseen what is to happen. And almost as if he had this very disease in view he adds: "For it is impossible to make all the sick well; this indeed would have been better than to be able to foretell what is going to happen; but since men die, some even before calling the physician, from the violence of the disease, and some die immediately after calling him, having lived perhaps only one day, or a little longer, and before the physician could bring his art to counteract the disease, it therefore becomes necessary to know the nature of such affections."

The essence of prognosis lies in recognising, as Hippocrates says, "the nature of affection." And yet the thought must arise how futile to discuss the future in a disease, aptly described in so large a number of cases in Sencea's words as "meditatio mortis." I am sorry my figures do not allow me to agree with my brother regius of Cambridge, that of "all perilous maladies it [angina pectoris] is perhaps the most curable."

A consultant has great difficulty in making his experience of any disease effective, particularly in this matter of prognosis. A patient seen once or twice arouses intense interest, and then vanishes from his clinical ken, and the oft-repeated impressions of other cases leave a blurred image like that of a composite photograph. My practice was to get the notes of each angina case in good order at once, typewritten, and filed away, and then at intervals my secretary could write to the medical man in charge and add a note on the patient's condition.

It takes courage to make a prognosis. Fulness of knowledge does not always bring confidence; the more one knows the more timidity may grow. The faculty which enables a man to look all round a question, to take a philosophical view of it, may be tempered with doubt, and an inability to reach a conclusion. A cocksure diagnosis and a positive prognosis may express the assurance of ignorance. In reviewing a long series, the high mortality and the great frequency of sudden death give a sombre tint to the picture, and yet I shall hope to show you plenty of bright patches. Seeing the more severe cases, the experience of the consultant is apt to be misleading, nor is always the lesson of his mistakes so thoroughly learned as by the general practitioner who lives in the same town with them. To know of the future is naturally the ardent desire of the patient and his friends, and whether we like it or not an opinion must be expressed. Sometimes out of pure kindness the tongue belies the head and always the great aphorism rings its warning—Experience is fallacious and judgment difficult. Now that we know more of the diagnosis of disease we talk less about prognosis, and to be of any value the latter must follow the former and grow out of it naturally. Often the one thing needful, the diagnosis, may embrace both prognosis and treatment; more than once this has happened in connexion with the disease under consideration. The first step is to get a clear idea of the nature of the affection—Is it an expression of organic disease of heart or arteries or is it only a painful disturbance of vascular function?

[1] Lectures I. and II. were published in THE LANCET of March 12th (p. 697) and 19th (p. 839), 1910, respectively.

PROGNOSIS IN RELATION TO ETIOLOGY.

From the standpoint of prognosis the disease may be studied in various ways. Naturally the most important consideration relates to etiology. In any case three questions are suggested: Is it syphilitic mesaortitis? Are the arteries involved in a general or local sclerosis? Is it a so-called functional condition unassociated with organic lesion of the arteries?

Syphilis is of the first importance, and we have learned to recognise the frequency with which this disease attacks the root of the aorta, causing angina pectoris, aortic insufficiency, or aneurysm. In 17 cases of my series there was a history of syphilis, and it is interesting to note that a majority of the patients were under 45 years of age. In many of the cases it was not possible to connect the attacks directly with the disease. I have already spoken of the lesion—a mesaortitis—sometimes limited to the supra-sigmoidal area. A characteristic paroxysm may be the first symptom; a patient may, indeed, die in the initial attack. Nothing may be detected on physical examination; there may, perhaps, be slight superficial tenderness on pressure over the region of the aorta. Insufficiency of the valves may come on under observation. A striking result of the extended use of Wassermann's reaction has been to show the importance of syphilis in aortic valve disease. The disease is not always confined to the root of the aorta; in three of my patients it was of the diffuse sclerotic type without special limitation. The prognosis is often very favourable.

The first case of angina pectoris I saw in Baltimore was a lieutenant in the navy, aged 30 years, who had had syphilis six years before. For a year he had attacks and had had to be off duty for many months. There was no enlargement of the heart, but there were systolic murmurs at both mitral and aortic areas. With the iodide of potassium he improved sufficiently to return to duty. After having lost sight of him for many years I then heard of him again, that he had remained perfectly well. A man, aged 58 years, seen on Oct. 28th, 1904, had severe attacks with moderate arteriosclerosis. I would not have recognised the specific nature of his trouble had I not seen him in 1898 with a most interesting syphilitic nephritis and periosteal nodes. The blood pressure was high, the aortic second sound ringing; but it was a favourable circumstance that the albuminuria had disappeared. He stood an anti-syphilitic treatment very well, progressively improved, the attacks gradually lessened, and he has remained well.

It is not always easy to determine whether or not syphilis is a factor, and yet it is well to give the patient the benefit of the doubt. A man, aged 56 years, who had had for three months very characteristic anginal attacks, had lived just the sort of life likely to bring them on—a gross eater, hard worker, heavy smoker, and yet the arteries were not specially sclerotic; the heart was not enlarged and the sounds were clear. He had had syphilis 30 years before. He improved with the use of iodide of potassium, and had no attacks for more than four years. I saw him very frequently, and it was not always possible to keep him in the "straight and narrow way." He died suddenly one night, probably in an attack, before a medical man could reach him.

In persons under 40 years of age it is always well to bear in mind the possibility of syphilis. A woman, aged 37 years, whose case had been a great anxiety, had paroxysms of angina with hypertension and acute pulmonary symptoms. There was no doubt as to the severity of the disease. The question of syphilis had not been discussed until she complained of an ulceration of the throat, which Dr. Warfield at once diagnosed as syphilitic. The transformation in a month was nothing less than marvellous. I had not thought of a possibility of her recovery.

The outlook is not always so satisfactory. I followed for a couple of years, with Dr. Julius Friedenwald, the various phases of aortic root syphilis in a man, aged 36 years, who had paroxysms of great severity, often associated with collapse, and once on the street with unconsciousness. Aortic insufficiency arose under observation. When I saw him on Feb. 2nd, 1904, he was having attacks every day, and could not walk more than 100 yards without pain and oppression in the chest, "as though there was a stone under the breast-bone growing larger and larger." Marked improvement followed anti-syphilitic treatment, and he was able to go back to his business for a year or more, and was

comparatively free. Then, in spite of vigorous treatment, the attacks returned, and finally in one of them he died.

The sclerotic aortitis may be the only lesion. John W., aged 24 years, a farmer, died in an angina attack, of which he had three or four during the fortnight. He was admitted to the hospital on May 25th, and died on June 8th, so that his illness did not last more than three and a half weeks. He had had syphilis nine years before. He was a healthy, muscular fellow, with a good pulse, sclerotic arteries, and an apex-beat a little out from the normal position. The attacks were severe, and in one he died suddenly. Beyond dilatation of the chambers and some chronic passive congestion there was nothing special; the valves were normal, the orifices not narrowed; characteristic sclerotic aortitis involved the entire vessel. Many of the smaller arteries were thickened.

INDIVIDUAL HISTORY, CHARACTER OF ATTACKS, AND VASCULAR CONDITION.

"The cardinal fact in the prognosis of real angina is its uncertainty," with which statement of Walshe we all agree, and further he confessed that he knew no method by which we can reasonably tell whether a sufferer will be cut off the next minute or survive many years. The individual history, the character of the attacks, and the vascular condition are the important elements in the prognosis—taking it for what it is worth.

Much depends on the patient himself—on the life he has led—the life he is willing to lead. The ordinary high-pressure business or professional man may find relief, or even cure, in the simple process of slowing the engines, reducing the speed from the 25 knots an hour of a *Lusitania* to the 10 knots of a "black Bilbao tramp." The difficulty is to induce a man of this type to lessen "the race, an' rack, an' strain." As William Pepper used to say: "Give me the life of a hare rather than the existence of a tortoise." Not even the terrible outbursts of pain may suffice to check men of this stamp, and yet, like Kipling's ship, *The Haliotis*, many a sensible fellow, whose engines at 50 or 55 years of age had gone to pieces on the "long trail, the out trail," has been refitted and enabled to reach port in safety. We doctors are notorious sinners in this respect, but it is so hard to lessen work when in full swing, so much harder than to give up altogether, and how few of us at 50 or 55 are able to do this! A severe attack of angina may save a man's life. A Congressman had burnt the candle at both ends—work and whisky, wine and women, had made a wreck of him at 49; and a spree culminated in a paroxysm of angina in which he nearly died. Five years subsequently he was in excellent health, in spite of a high blood pressure and moderate sclerosis of the arteries. He dated the change of life from the attack which had frightened him into sobriety. A group of most encouraging cases show that long intervals of good health, and even complete freedom, may follow the adoption of reasonable habits. Let me refer to one or two. Last summer I met in London a distinguished American lawyer, whom I had seen ten years ago in a series of severe attacks, one of which nearly proved fatal. Following in the track of the intercostal pain he had an outbreak of herpes, the only instance I have seen of this complication. After six months' rest he resumed work at an easy pace. I saw in the papers a few weeks ago the death of General P. whom I saw in 1901, then aged 65 years. For two months he had attacks of angina, and once had a succession of paroxysms which kept him in bed for three days.

Not much stress can be laid on the character of the attack so far as the ultimate outlook is concerned. The immediate prospect is always doubtful; a mild paroxysm may be succeeded by a severe one, or death may occur with the appalling suddenness which is one of the features of the disease. The vaso-vagal features—pallor, sweating, faintness, and nausea—are serious in proportion to their prolongation and to the resistance they display to remedies. A man may come out of a state which seems absolutely desperate. One does not often see recovery and subsequent good health after such a paroxysm as in the following case, which was studied with great interest by Dr. McCrae and myself.

J. H. W., aged 60 years, admitted to a private ward on March 24th, 1904, was a vigorous, active man, the victim of many acute infections, but not syphilis. He had taken an average quantity of whisky and had worked hard. In June, 1902, when salmon-fishing, he had his first attack, then a second one in January, 1904; a third on Feb. 22nd, which was very severe, as he lost consciousness; a fourth on March 10th, also very severe; and a fifth a few days before he came into the hospital. He was a robust, healthy-looking man with a good colour, a feeble heart impulse, no superficial heart dulness, distant sounds; pulse of good volume, slightly irregular; marked sclerosis of the arteries. On April 4th at 1 P.M. he had an attack in which he looked as if he were dying; the hands and feet were cold and clammy, and at intervals he sighed deeply and threw up the chin; he was conscious; the pulse was from 42 to 48, regular but small; the heart sounds were feeble and distant. By 1.30 the ashen grey colour was replaced by slight lividity; the pulse rose to 52; the blood pressure was 120 mm. of mercury. At 2 o'clock the pulse was 60, better, quieter, and there was less cyanosis. At 2.30 the pulse was 68; he vomited several times, and at intervals had very deep sighing respirations. He was in a very critical condition all the afternoon, but gradually improved. Two days later, at 1.30 A.M., he had a mild attack of pain in the region of the heart with intermittency of the impulse. He gradually improved and left the hospital on June 23rd. Through Dr. McCrae I have heard from him at intervals, and he has kept very well. This man had six severe cardiac attacks, in one of which he nearly died, and yet he has now remained well and active for the past six years.

In the attack itself there are two bad prognostic signs—disturbance of respiration and slow, irregular heart action. The acute orthopnœa with signs of emphysema and œdema of the lung is serious, and not met with except in grave cases. Death may occur or the attacks may replace those of angina. Slow, grasping breathing, particularly if the patient has become unconscious, is of bad omen. Cheyne-Stokes respiration, a frequent accompaniment, is a bad sign when it comes on in a man who has not had it previously, in connexion with cardio-vascular or renal disease. The state of the heart is very deceptive. A man may die shortly after an apparently satisfactory examination. Listen to this report, jotted down at the bedside of a man in an attack, and who died five hours subsequently. "Pulse 92, at first regular and of good volume, but subsequently one or two beats dropped. There is nothing to attract one's attention in the pulse itself. (The blood pressure taken in the same afternoon was 160 mm. of Hg.) The arteries are not sclerotic; the apex beat is not visible; and between a high stomach tympany and an inflated edge of the lung it is not easy to make out the heart limits; the sounds are clear at apex and base, a beat drops occasionally; there is no gallop rhythm, nothing to indicate any serious disturbance; there is no heightened sensibility of the skin over the heart." This man had had anginal attacks on and off for a year. The heart was working with not more than 30 per cent. of a coronary circulation; one main stem was entirely obliterated, the other partially.

The small, feeble, rapid pulse is not of such ill omen as one of fuller volume, with marked arrhythmia; and a slow pulse with unconsciousness is always of grave import.

The circumstances that bring on an attack are almost of as much moment in the prognosis as its character. We all recognise the three chief factors—emotion, distension of the stomach, and muscular effort. Of the three emotion is of the least significance. Many instances of slight anginal attacks are brought on by anger, worry, or sudden shock; and while in individual cases they may be serious, yet the cause is rather easier to avoid, and always has seemed to me to be less dangerous, though John Hunter neither thought so nor found it so. In many elderly persons with stiff arteries the commonest cause is stomach disturbance; a full meal, indigestion, flatulence, particularly at nights, is certain to bring on an attack. And there are individuals who are sensitive to this cause only. As one patient expressed it: "Had I not to eat I never would suffer."

The angina of effort, the paroxysm that comes on invariably after a man walks a few hundred yards or after using his arms, is a coronary artery affair, and is, as a rule, more serious than that which comes on spontaneously or as a result of emotion. This feature is the most common indication of what you, Sir, call "primary cardiac angina." The parallel between the angina of effort and intermittent claudication has often been drawn, though the cardinal difficulty has been pointed out that in the one case a man stops walking, in the other the heart continues to work. A curious feature in some cases of this type is that a man

may be able to walk freely in his place of business, or in his house, and not be able to do so on the street. While constituting some of the most distressing cases, since even the act of dressing may bring on pain (*angor de toilette*), yet life may be prolonged, as in the case I mentioned of the man who had been a victim for some 11 years, and whose coronary arteries were calcified to their finest ramifications.

And the third important factor in prognosis is the patient's cardio-vascular condition. Persistent high tension with marked sclerosis of the arteries occurs in a very large group of cases, but it is important not to over-estimate their seriousness. The outlook may depend much less upon the existence of these factors than on the sort of man in control of them. An engineer of the "McAndrew" type will so handle his machine that the ship makes the voyage round the Horn to London with safety; whereas a man of a different type will wreck the engines and leave his ship a derelict. A large majority of all cases of angina pectoris have no obvious signs of disease of the heart itself. Of valvular lesions the aortic alone is important—insufficiency in the young man usually means syphilis; stenosis in the old means calcified aorta, narrowed coronary orifices, and rigid coronary arteries. Disease of the aorta itself is not often recognised. The prognosis of cases of aneurysm beginning with angina is, of course, serious, though as the sac grows the attacks may disappear.

FORMS OF ANGINA PECTORIS.

It was a distinguished President of this College, John Latham, who in 1812, I believe, first recognised that "certain symptoms did not always denote angina pectoris," and spoke of angina notha; and it is a useful division which recognises a minor and major type of the disease—or what I think is still better, a form without, and a form with, organic lesion of the cardio-vascular apparatus. A diagnosis of these two forms from each other is an essential preliminary to successful prognosis. It may have surprised some of you that the number of cases of mild or functional angina in my list was so small, but I carefully excluded all trifling forms of heart pain in nervous women, and have only considered the cases which presented the features of an anginal paroxysm. Of the 43 cases there were 23 in women, not so large a percentage as given by many authors. It is a useful division to group the cases of this type into the neurotic and toxic; the former occur much more commonly in women and the latter in men. In looking over the histories of 14 cases of the severer organic angina pectoris in women I see that in only two or three cases was the diagnosis in doubt. The average age was much above the other group—56 years. In not a single instance was there absence of sclerosis, high pressure, or heart disease, and the character of the attack in almost every instance stamped the nature of the case. I have more frequently mistaken organic angina for the functional form than *vice versâ*. Two of my worst mistakes were in medical men, and for their sakes I did not regret it, since both derived great comfort from the thought that they were not the subjects of angina vera. One man would have deceived Heberden himself, as he had hysterical attacks, at any rate, nervous outbreaks with spasm of the larynx, a sort of child-crowing, and a nervous dysphagia. Let me read the note I dictated at the end of his report:—"Against recurring attacks of moderate severity in a man of 53 must be balanced a healthy heart, a very nervous temperament, and the occurrence of laryngeal and œsophageal spasm. The patient is very apprehensive and feels sure he is going to die. I think the balance is in favour of a neurotic, functional condition." I was wrong; three years subsequently he died in an attack. The other patient had not a trace of obvious organic disease, but he had driven his engines very hard. He had smoked excessively, and at the time of the attack was very emotional. He improved so much that we all congratulated ourselves upon the correctness of our treatment and diagnosis. He dropped dead while speaking at the telephone.

Many subdivisions have been made of the neurotic form, but for prognosis they roughly fall into two, the distinction between which is the predominance of the vaso-constrictor or vaso-dilator phenomena. Many cases resemble what Gowers describes as vaso-vagal storms. Beginning with coldness of the hands and feet, numbness and tingling, with small pulse, pains are complained of in the heart itself, often more to the left, and in the pectoral rather than in the sternal region; the radiation may be marked, up the neck and down the arm, and much more than in the organic form superficial sensitiveness of the skin is noted. The attacks may pass off in the course of an hour or two, but in the severe ones there may be nausea and vomiting; the respiration is quickened, and there is an indescribable sense of fear and dread. With it all the patient may move about, and there is rarely present the characteristic immobility of the severe forms.

When the vaso-dilator features predominate the patient complains of fulness in the head, of a terrible distress in the back of the neck, or a general sense of superficial tension. As one woman expressed it: "I feel just like an inflated balloon on the point of bursting." The heart's action may be forcible, and there is widespread throbbing of the arteries. The face and hands may be congested and hot, the face sometimes slightly livid. Following these symptoms, or coming on at the same time, the patient begins to have heart pain, which may become very severe; the lines of radiation may be characteristic, and with these symptoms there may be remarkable prostration. One patient whom I saw very often in this type of attack never had cold hands or cold feet, and on several occasions so distended was the superficial vascular system that bleeding was suggested, but she would never consent. There is rarely much difficulty in determining the character of these attacks, with which are often associated neurasthenia and hysteria. Occasionally one meets with paroxysms of great intensity, in which as the pain reaches a maximum the patient is thrown into a sort of tetany. In a man aged 32 years, whose troubles began with palpitation, the pain was apparently very severe, and he had stiffness and cramp of the fingers, a sort of tetany in which they could not be moved. Sometimes he would get into a state of general rigidity, all the time complaining of terrible agony in his heart. Many patients have phobiæ.

The majority of these cases do well, and it sometimes happens, particularly in a man, that a reassuring diagnosis is all the treatment required. In attacks of extraordinary severity a fatal event may happen, as in the patient of Dr. Bullard, to which I referred in the last lecture. While gradual recovery in the course of a few months or a year is the rule, some cases are very obstinate. A man of 28, who had not worked for five years owing to constant recurrences of pain in the heart and along the inner side of the left arm, was exceedingly nervous, and after months of treatment we could do nothing with him. As he wrote pathetically: "I heard you say to the students that there was nothing wrong with my heart, but if you had it for a few nights and felt the pain in it, you would think quite differently."

The worst sort of neurotic angina may follow influenza, and the rapid recurrence of the paroxysms may render a man's life unbearable. An old student and valued friend in practice near Philadelphia, who was a little nervous and had occasionally had migraine, a month after influenza began to have the most extraordinary attacks. The pallor and coldness of his extremities exceeded anything I have ever witnessed; nothing could warm them; even after his legs had been for 15 minutes in water as hot as he could bear, when taken out he complained that they felt cold. In the attacks the mental distress was agonising, and he had a sense of terrible constriction across the upper part of the chest. He threw himself about the bed, and the condition was most painful to witness. He gradually recovered.

My experience of an angina which may be termed toxic is very limited. I have not seen more than a dozen instances in which to tea, coffee, or tobacco could the attacks be attributed. We may look forward to an increasing number of cases of heart pain, and of the mild type of angina in women, with the rapid increase of cigarette smoking. I saw last winter in Italy an American woman whose daily allowance of cigarettes was never under 25. She had an unusual feature—cardiac pain only after rising from a recumbent posture, and this would worry her for half an hour, so that it made dressing in the morning difficult.

It is interesting to note that very heavy smokers may die a vagus inhibition death, just such as we see in angina pectoris. Three robust, healthy persons of my acquaintance, not known to have had heart disease, but all incessant smokers of very strong cigars, died suddenly in this way, without warning—one aged 53 while walking; one a man of 36 fell off a chair at his club; the other a man of 38 died on the beach after bathing.

TREATMENT.

A retrospect of one's experience in treatment will be coloured by the general character of the special disease under consideration. I look back with unmixed satisfaction at my experience with typhoid fever, every aspect of which may indeed be dwelt upon with pride by every member of the profession. On the other hand, pneumonia arouses feelings, also unmixed, but of a totally opposite kind. There have been certain gains: we know our enemy better, but there is no pleasure to be had in looking back upon the record. And the other night, in going over case after case of my typewritten reports, I could not help taking stock in this way of angina pectoris. And on the whole, in spite of the frequency of the broad arrow, the feeling was one of satisfaction. Terrible as it is in certain aspects, angina has many circumstances in its favour: it kills late, it kills quickly, we are able to do much to lessen the sufferings of the victims, and we cure a certain number of cases. There are but few deaths under 40 years of age; no known disease kills so peacefully, so painlessly, and there has been real and solid progress in the advance of our knowledge of how to treat it.

As with prognosis, so with treatment: there are three great groups to be considered—syphilitic, neurotic, and arterio-sclerotic.

When a man gets a specific aortitis it means he has not had efficient treatment. There is nothing in the lesion of the arterial wall which mercury and iodide of potassium cannot control. The spirochætæ excite a diffuse granulomatous mesaortitis, with destruction of muscle and elastic fibres, and the chief difficulty arises from its insidious progress, so that irreparable damage may be done before any warning is given. The details of treatment offer nothing upon which I need dwell in this audience. The value of mercury, no matter what the stage of the syphilis, is emphasised when one actually sees the spirochætæ in large numbers in the aortic wall, as has been demonstrated by J. H. Wright, since so far as we know the metallic drug alone acts as a specific. Iodide of potassium clears up the exudate and, as is well known, will cause a node to melt away even faster than will mercury. One thing, too, it does with almost invariable success—relieves pain. Here is the secret of its great influence in aneurysm in which in the early stage it is as good as morphia in giving relief, clearing the exudate in the media and adventitia, and in this way relieving the pressure on the nerve elements.

In the neurotic cases, with a recognition of a basic disturbance in the vaso-motor apparatus, the treatment is most satisfactory, and only a few cases prove refractory. A modified Weir-Mitchell cure with hydrotherapy meets the important indication. Long experience has taught the value of the wet pack in restoring stability in vascular ataxia. Counter irritation over the heart is sometimes helpful. Of drugs the patients have usually had enough by the time they reach the consultant, and one part of the battle is to wean them from all sorts of mixtures. One patient laid out before me 22 prescriptions, and was much aggrieved not to have a twenty-third. Sometimes a reassuring diagnosis is the only treatment needed. I have always been sorry that an article on angina pectoris was in the "British Encyclopædia," since it has helped to make the very name deadly in the ears of the public; and there is an advantage in speaking to nervous patients of a false variety, which may mimic every phase of the true disease. When high tension is present, which is not infrequently the case in neurasthenia, the nitrites are helpful, and they have a very special value in the toxic forms, particularly that due to tobacco. In the cases with extreme vaso-motor ataxia I have long used the extract of ergot (ergotin) with advantage two or three grains three times a day.

I have nothing to add to the general knowledge which we all have of the treatment of the severer type of the disease, but I may give you my experience very briefly: first of the treatment of the paroxysm itself and then of the general conditions out of which it arises. It was not to be expected that our generation could have in any one disease a second therapeutic boon of equal importance to that given us by our distinguished Fellow, Lauder Brunton. Of the value of amyl nitrite in loosening arterial spasm and relieving the tension and strain upon which the pain depends we are all agreed We see its remarkable benefit, more particularly in the cases which begin with a widespread vaso-constrictor influence. Many practitioners express disappointment that it does not always relieve the pain promptly in the severe paroxysms; but it is not itself an analgesic, but only loosens the muscle grip; and it may well be that the painful effect of the disturbance of tension may persist after the spasm itself has disappeared. At any rate, experience teaches us that we often have to resort to morphia to relieve the atrocious character of the pain. Moderate doses, as a rule, suffice; but it is to be remembered that, as Burney Yeo pointed out, there are cases extraordinarily resistant; and I have reported an instance of status anginosus in which, between 10 o'clock on Saturday night and 1 P.M. on Sunday, five grains of morphia were given hypodermically and by the mouth with relief of the pain, but without giving sleep. In these terrible cases, in which attack follows attack, the nitrites are of as little use as water. In despair one may have to resort to chloroform. I well remember to have done so at first with fear and trembling, as the patient's heart was feeble, but it seemed imperative to give the poor fellow relief. I have used it many times since, and never with ill effects; in no case did sudden death occur during the administration or immediately after it. Theoretically the practice is a risky one, but neither in my hands nor in those of the late George Balfour of Edinburgh were there ill consequences.

Oxygen inhalations are useful, particularly when there is a dusky cyanosis and in the asthma-like dyspnœa. In the weak, failing, irregular heart one is tempted to give digitalis, and it may be tried, preferably by the hypodermic method. There is one type of case in which the drug should be used—when marked cardiac weakness follows an acute single attack in a comparatively healthy man. Post-mortem experience shows that the lesion in such a case is very likely to be blocking one of the coronary vessels. While anatomically the coronaries are not endarteries, functionally they are, and an infarct is, we know, very apt to follow; and if after the attack a pericardial rub is heard we may be certain this has happened. By maintaining the pressure within the myocardial vessels the extent of the anæmic necrosis may be lessened.

For the general condition the value of iodide of potassium in arterial lesions, and specially in the syphilitic variety, is universally recognised, and it may be given at intervals for months. Last winter I had an interesting talk with the distinguished Roman clinician Marchiafava, whose experience in angina pectoris is very large, and he gave me reports on cases treated with theobromia, from 20 to 30 grains in the day. A number of them were greatly benefited. I have only had the opportunity of trying it twice; in one case the use had to be interrupted on account of a complication; the other patient has been remarkably helped, particularly in the capacity of taking more exercise.

In the middle-aged man who has had an attack of angina it is usually a question of high tension with beginning or actual sclerosis of the arteries. So soon as a man has crossed that point in life when the pace is the fastest, whether we put it at 25 with Plato, at 40 with Montaigne, or to be more kind, let us put it with the sexagenarian himself, at the grand climacteric (63), the tubing begins to show signs of wear and tear, and the blood pressure gradually rises. Now there is nothing more difficult than permanently to reduce persistent high blood pressure. Drugs have really very little influence. The nitrites are helpful in temporarily lowering it; but take a man with a persistent pressure of 230 to 240 mm. of Hg, and you may get the record to 210 or 220, but to get it back to 150 or 160 and keep it there is not often within our power. Much more important results may follow change in a man's habits of life. I usually give two prescriptions—"Go slowly," "Eat less"—on which I find a great many patients put about the same value as did Naaman on the prescription of Elisha. A man who has kept a full head of steam in the boilers must learn to lower the pressure and be content with the quiet 10 knots an hour speed. It is very difficult to stoke the engines in due proportion to the work expected. No wonder there is high pressure and the machine goes to pieces when the furnaces are stoked for the *Lusitania* and the engines are asked to do the work of an ordinary ocean tramp. Like longevity, angina pectoris is largely a question of the arteries. It is an old story, this association of a long life with a small intake, a story well told by Cornaro in the sixteenth century,

and in our own day by our own Cornaro, Sir Herman Weber.

If, Mr. President, I have dealt with this important subject in a somewhat sketchy manner my apology must be that before such an audience I could not discuss trite and every-day features of so familiar a disease, so I thought it would be more interesting to give you my personal experience. It adds salt to life when men react differently to the same impressions. It is always with a shade of regret to find a colleague of the same way of thinking with myself on every question, so that I hope you have not all agreed with all of my conclusions. At any rate, Sir, mindful of the wise counsel of Lucretius, I have tried not to base wide opinions on small signs, and so involve myself in the snare of self-deceit.

ABSTRACT OF THE

Hunterian Lectures

ON

THE SURGERY OF THE LYMPHATIC SYSTEM.

Delivered at the Royal College of Surgeons of England on Feb. 23rd and 25th, 1910,

BY W. SAMPSON HANDLEY, M.S. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND; ASSISTANT SURGEON TO THE MIDDLESEX HOSPITAL.

LECTURE I.

Delivered on Feb. 23rd.

GENTLEMEN,—The rudimentary condition of lymphatic surgery is shown by the almost exclusively ablational methods hitherto employed. Thus, amputation or excision of the diseased tissue have been the methods of choice for lymphatic œdema of the tissues, while serous effusions are run to waste through a cannula. The conservative phase of lymphatic surgery is that to which I shall mainly direct your attention. For the aspect of the subject is being changed by the idea of the internal drainage of serous effusions introduced into it by my colleague, Dr. W. Essex Wynter, and by the use of capillary attraction along silk threads as a substitute for destroyed lymphatic vessels in lymphatic œdema, a method which I introduced two years ago. My material divides itself into three sections: (1) the surgery of lymphatic œdema; (2) the surgery of serous effusions; and (3) cancer surgery as a branch of the ablational side of lymphatic surgery. We will first consider the various forms of lymphatic œdema.

SOLID ŒDEMA DUE TO CANCER.

Dropsy associated with cancer may show itself as a serous effusion in the pleura or peritoneum, or as a local œdema. In the latter form it is most frequently seen in the arm. Less commonly it occurs upon the chest, for, as I have shown, in its early stage, *cancer en cuirasse* is simply a lymphatic œdema of the skin, and no cancerous elements are at first present in the thickened skin. I show you two sections of the thickened skin to illustrate this fact.

THE BRAWNY OR DROPSICAL ARM OF BREAST CANCER.

A brawny arm develops in 16 per cent. of all cases of breast cancer. Its frequent occurrence depends upon the commencement of the growth in a situation close to the root of the limb, conveniently placed to menace its lines of ymphatic communication. The œdema often commences as a general swelling of the whole limb. In some cases it begins at the wrist and travels upwards; less commonly it begins at the shoulder and travels downwards, or it may first be noticed at the back of the elbow. In some cases a sharp line of demarcation in the deltoid region separates the swelling from the normal tissues above. In other cases the shoulder shares in the swelling, which may in a late stage extend to the thoracic wall or to the opposite breast. Of 15 cases in which I have done lymphangioplasty in breast cancer, 8 have been on the right and 7 on the left side. Of 54 cases of brawny arm of which, apart from my operative series, I possess notes, 34 have been on the left side and 20 on the right side. The condition thus appears to be commoner on the left side. Occasionally in association with cuirass cancer both arms are affected.

Dropsical arm is associated with the more chronic forms of breast cancer. In the cases upon which I have operated an average period of six and a half years elapsed between the first sign of cancer and the development of the swollen arm. In one case the swelling took 13 years to develop, in two others 11 years. At the opposite end of the scale are two cases in which only six and nine months respectively intervened between the onset of breast cancer and the swelling of the arm. The period of survival which may be expected after a dropsical arm has appeared is difficult to determine, but is not a long one, and probably averages under one year, though in very chronic cases it may exceed three years. Into this short period is usually crowded most of the physical agony caused by the disease. The dropsical arm acquires most of its importance from the excruciating pain which it causes—a pain which in the worst cases almost passes the limits of endurance. This pain is referred to the whole limb, and varies from a dull ache to an intolerable burning agony. It is accompanied by a heavy, leaden drag, due to the weight of the limb. The pain varies in intensity, and there may at first be periods of complete intermission. In several of my cases the pain, though diffuse, has been much worse in the palm of the hand than elsewhere. After a time paralysis of the limb supervenes. The movements of the fingers are the last to be lost. The œdema interferes with passive as well as with active movements of the joints. The elbow is usually held in a position of slight flexion, and can be moved only through a small arc of 30 degrees or less. The wrist and fingers are also stiff, and when the œdema affects the shoulder vertical movements of the scapula upon the chest are prevented. Lastly, the arm may be deeply cyanosed.

PATHOLOGY OF THE DROPSICAL ARM OF BREAST CANCER.

Among the general factors which may contribute towards the appearance of dropsy in cancer is the watery state of the blood plasma demonstrated by Dr. J. J. Douglas, which acts in two ways—by diminishing transudation and by hindering absorption through the capillary walls. But the strict localisation of the area of œdema in brawny arm shows that local, not general, factors are the chief agents at work. The swelling was formerly considered to be caused by venous obstruction, and to result from the pressure of growth upon the axillary veins. Various considerations show the incorrectness of this belief. The fact appears to be that the venous obstruction in cases of dropsical arm is not the cause of, but is caused by, the dropsy. It has been shown by Professor E. H. Starling that if fluid is injected into the subcutaneous tissues of an animal's leg, obstruction or occlusion of the veins may be produced. The rise of pressure thus produced in the capillaries tends in its turn to increase the transudation of lymph and to aggravate the dropsy, and thus a vicious circle is set up. The return of the cyanosed limb to its normal colour within a few days of the operation of lymphangioplasty, which I have observed on more than one occasion, is an experimental proof of the truth of the explanation in the cases where this phenomenon is observed. In other cases no doubt the pressure of growth on veins is a minor factor in aggravating the œdema.

If venous obstruction is a consequence of "dropsical arm," or at most a minor factor in aggravating it, some other explanation of the dropsy must be sought. In point of fact, the onset of a dropsical arm is determined by the blocking, not merely of the main lymphatic trunks, but also of all the collateral routes about the shoulder by which the lymph could find a passage. The pathology of brawny arm is a corollary to the permeation theory. As I have shown, permeation spreads from the breast in an ever-widening circle, which must ultimately envelop the shoulder completely. I have demonstrated the growing edge of permeation in the deltoid region. Perilymphatic fibrosis converts all the permeated lymphatics, small and large, into cords of fibrous tissue, and the arm is entirely cut off from the lymphatic circulation by the destruction of the lymphatic channels, principal and collateral. Thus, as might be expected, the dropsical arm of breast cancer is not met with until the disease has reached a very advanced stage. Often within a few months of its appearance obstruction to the pleural lymphatics shows itself by the

appearance of pleural effusion. What is the factor which determines the collection of serous fluid on the pleura of the affected side? It is the choking-up of the subpleural lymphatic plexus by permeation, or its obliteration by consequent perilymphatic fibrosis. Of the former process I am able to show you an excellent photograph. Some time after the arm has been cut off from the lymph circulation the process of permeation, at the opposite side of its circle of extension, reaches the pleura, and though repeated tapping may give temporary relief, death is certain within a few months at most. Thus in a majority of chronic cancers which produce brawny arm death is due to internal lymphatic obstruction—a lethal factor the importance of which seems hitherto to have escaped recognition. On two occasions Mr. A. G. R. Foulerton has examined lymph for me from cases of dropsical arm, and in both instances has found it sterile.

ORIGIN OF THE OPERATION OF LYMPHANGIOPLASTY.

Until two years ago the only treatment available for cases of dropsical arm, after elevation had ceased to produce any effect, was either amputation of the arm or the use of morphine. The readiness of patients to listen to the suggestion of amputation is the best possible proof of the intolerable agony caused by the disease. Two years ago I was asked to amputate a dropsical arm, the patient's consent to the operation having been obtained. At this time my work in the Cancer Research Laboratories of the Middlesex Hospital had taught me that the condition would be cured if the swollen limb could be provided with a new set of lymphatic vessels. And I bethought me of a section in my possession showing a silk ligature which had been embedded in the tissues for ten years. Though superficially eroded the main substance of the thread is intact. Moreover, the interspaces between the silk fibrils are so small that no intrusive cells have been able to enter and obstruct them. The section, moreover, affords no evidence of any clotting of the tissue fluids in the interspaces of the thread. These facts pointed to a silk thread as affording for the tissue fluid a permanent conduit, sufficiently unabsorbable, and not liable to obstruction by organisation or thrombosis. I accordingly buried a number of silk threads in the subcutaneous tissues of the arm, and permanently relieved the pain and swelling during the remainder of the patient's life. I mention these facts to show that the operation of lymphangioplasty was not a casual happy thought, but the end-product of a long course of laboratory work, which seemed at the time to have no practical application to the treatment of lymphatic obstruction.

BENEFITS TO BE EXPECTED FROM LYMPHANGIOPLASTY.

Before describing the operation I wish to state clearly that it is a palliative only and that it has no claims to prolong life or to modify the natural downward course of the disease. In favourable cases it has the following effects: (*a*) Complete relief from pain within 24 hours, unless the pain is partially due to some cause, such as nerve pressure, independent of the œdema. (*b*) A marked and rapid fall in the tissue tension of the whole area drained by the threads. The arm in consequence, instead of being hard and brawny, becomes abnormally soft and flabby. This may sometimes occur even though postural treatment is neglected and in the absence of any marked diminution of the diameters of the arm. (*c*) Rapid subsidence of the swelling, commencing immediately in the hand and extending to the forearm within 24 hours. At first the upper arm is unaffected, or its diameters may even slightly increase. But within a week or two the diameters of the upper arm are also markedly lessened. The subsidence is usually permanent, unless and until pleural effusion supervenes to interfere with drainage. These effects are at first dependent upon the adoption of proper postural after-treatment, but after a few months elevation of the arm may be entirely abandoned without any marked increase of swelling. (*d*) Return of power to the paralysed arm if the paralysis is of recent date. If the paralysis is of more than a few months' standing, no return of power is to be expected. (*e*) An improvement in the general condition, dependent partly upon relief from pain and its associated symptoms of insomnia and depression, and partly upon the abandonment of sedatives.

TECHNIQUE OF LYMPHANGIOPLASTY FOR BRAWNY ARM.

The special materials necessary are a set of suitable probes, lymphangioplasty forceps, with jaws specially designed to take a firm grip of either end of the probe; and a supply of No. 12 tubular twisted silk. These requisites may be obtained from Messrs. Mayer and Meltzer. The tissues of the arm are drained by two long U-shaped lines of silk, each line composed of two threads of No. 12 tubular twisted silk. One of these lines drains the front of the arm, the other the back. The bend of each U lies immediately above the wrist, and its two limbs occupy respectively the radial and ulnar side of the limb. Thus, along the whole length of the limb, are found four double lines of silk, spaced out round the limb as nearly as possible at quadrant intervals.

The principal difficulties of the operation are connected with the maintenance of the silk in an aseptic condition. Owing to the large area dealt with, extending on to the back, the necessary changes in the posture of the arm, and the length of the silk threads, accidental contact may very easily occur between the silk and the surface of the skin, the edges of the incisions or surrounding objects. I regard the use of masks as essential, and the silk ends not actually dealt with at the moment must be kept wrapped in sterile gauze, which is also useful to protect them from the edges of the incisions as they are being drawn in after the probe.

I will now lay before you my clinical experience of the operation in a series of 15 cases, analysed into five classes:—

A. CASES IN WHICH A DROPSICAL ARM IS THE ONLY MANIFESTATION OF ACTIVE DISEASE.

Three of the cases in my series may be regarded as ideal ones for the operation of lymphangioplasty. Each of these had a long history of cancer, the disease having begun respectively 14, 14, and 7 years previously. Evidently, the defensive processes of fibrosis were exceptionally active. In each of these cases no clinically discoverable mass of cancer existed at the time of the operation, and no ulceration was present as a menace to operative asepsis. Under these conditions the operation appears to be uniformly successful. In all these cases pain and swelling were relieved within a day or two of the operation. One of them remained free from pain and swelling to the day of her death (Case 1); a second survives 21 months after the operation without recurrence of the swelling (Case 5), but still suffers occasional attacks of pain, due to a palpable axillary recurrence which has now appeared. In the third case (Case 8), after complete relief lasting about four months, pleural effusion showed itself, and pain and swelling in some degree recurred in the arm, owing to consequent impaired lymph circulation in the thorax. The pain, however, was slight, and though morphine had been habitually used prior to the operation, it remained unnecessary until the patient's death from pleural effusion and thoracic growth.

B. CASES IN WHICH RECURRENT MASSES OF GROWTH ARE PRESENT, BUT ULCERATION AND PLEURAL EFFUSION ARE ABSENT.

Six of my cases come under this heading. In all of these cases recurrent masses of growth were present in the neighbourhood of the brachial plexus. Three of these were successful; in one the period of benefit was very short, and two were failures. In this class of case the difficulty is to decide how much of the pain is due to nerve pressure and how much to the dropsical arm. Evidently, in view of the successful cases, the mere presence of growth in the axilla or supraclavicular region is not a bar to operation, but the relief obtained may not be complete, and in half the cases no benefit results. My experience teaches that if the pain is referred mainly to the axilla or supraclavicular region, or if it is a lancinating pain shooting down the arm, little or no benefit is to be expected from lymphangioplasty. If, on the contrary, the pain is a heavy diffuse pain referred to the whole limb, or if it is located in the elbow or the hand, the operation will afford relief, even though there is recurrence above or below the clavicle.

C. CASES IN WHICH AXILLARY OR THORACIC ULCERATION IS PRESENT AND PLEURAL EFFUSION IS ABSENT.

This is a class of case which I approached with caution and with some reluctance, for I feared that in the presence of a cancerous ulcer upon the thorax or in the axilla, it would be very difficult to prevent contamination of the silk threads. The first case (Case 7) upon which I operated in the presence of ulcerated growth was submitted for a month previously to ionic medication with mercury in order

to cleanse the ulcers. In two later cases antiseptic irrigation or applications of acetone have been employed. Thanks to the loyal coöperation of medical and nursing colleagues in these and other precautionary measures, the calamity of suppuration has never occurred. In every case all the incisions have healed by primary union, nor has it been ever necessary in any of the cases under this heading to remove the threads. Repeated success in these cases has increased my boldness in dealing with them. In my latest case (Case 15) the axilla was a gaping chasm pouring out pus, and the ulceration had completely surrounded the arm save for a bridge of normal tissue posteriorly, about 6 inches wide, which afforded the only possible avenue for the threads. In this case, primary union of the incisions occurred, and the patient is delighted with the relief of pain and swelling, and the return of muscular power which have resulted from the operation. Mr. A. O. English acted as house surgeon, and the case was nursed in Stafford Ward, one of the cancer wards of the Middlesex Hospital.

The onset of acute eczema of the arm three weeks after operation in one of the cases is a complication unique in my experience, and may fairly be regarded as an unfortunate accident which spoiled a case giving every promise of success. I may remind you that when physiologists wish to increase the production of lymph in a limb, the method they adopt is to scald the skin of the anæsthetised animal. It is easy to believe that acute eczema would have a similar effect. The other two cases in this class were unequivocal successes. It may, I think, be concluded that the presence of ulceration does not appreciably increase the risk of lymphangioplasty, provided means are taken to clean the ulcers and to shut them off effectually from the field of operation. With my present experience I should not hesitate to operate upon cases presenting thoracic ulceration.

D. Cases in which Pleural Fluid or other Evidence of Thoracic Cancer is Present, but the Condition of the Patient does not Negative a General Anæsthetic.

When pleural fluid is present the balance of life remaining to the patient is in any case likely to be a short one. Thus in one case the chest only filled up two days before death, and 70 ounces of fluid were present in the pleura on the affected side. This is an extreme case. As a rule pleural effusion precedes death by two or three months, occasionally perhaps by a year. Apart from this question of survival the success of the operation is doubtful, for hydrothorax shows that the lymphatic block extends over a wide area including the pleura. Under such conditions nothing can be promised, but if paracentesis is also done a few weeks' relief may be obtained, and therefore an urgent desire on the patient's part for a brief respite from pain may justify an operation. The necessity of morphine—a drug to which many people have a kind of conscientious objection—may thus be postponed for a while.

E. Cases in which the Patient is so Ill that the Risk of a General Anæsthetic cannot be Faced, or in which the Silk Threads must be Led through Cancerous Tissue.

These cases are quite unsuitable for lymphangioplasty, a fact which I learned by experience in one of my earliest cases.

Mortality of Lymphangioplasty for Breast Cancer.

The case to which I have just referred is the only one of my series in which primary union has failed, and the only one in which death has followed closely upon the operation. Including this unsuitable case, the operation mortality of my series is 7 per cent.; excluding it the operation mortality is *nil*. I think an impartial critic will agree that the latter is the fairer estimate, and that my cases show the procedure to be almost free from risk to life when asepsis is maintained. The operation is indeed equivalent merely to a 5-inch skin incision, that being about the aggregate length of the multiple small incisions. Shock and hæmorrhage need not be feared.

The Choice of Cases for Lymphangioplasty.

The preceding analysis of my cases shows that lymphangioplasty is contra-indicated in cases where a general anæsthetic cannot be borne, and in cases where the silk threads would have to pass through cancerous tissue. It is also inadvisable to operate where there is growth present about the shoulder, if the pain is mainly an axillary one, or is a lancinating pain shooting down the arm. In the presence of pleural effusion or thoracic secondary growths the benefits of the operation are transient, but the shortest period of relief may, under the circumstances, be considered by the patient as worth having.

Minor Degrees of Swelling.

Minor degrees of obstruction to the return of lymph from the arm are not infrequently met with in breast cancer. The operation of lymphangioplasty should not be applied indiscriminately but should be reserved for the severer degrees of lymph stasis in which other modes of treatment are powerless. The axillary scarring which necessarily follows removal of glands may sometimes lead to persistent œdema of the arm, usually slight in amount. In such cases the application of a bandage and the elevation of the arm on an inclined plane for one or two hours a day will usually suffice. But in true brawny arm, even in favourable cases, where the affection has not reached the stage of brawny hardness, the effects of posture are temporary and imperfect. If the œdema is marked and progressive, and if postural treatment is painful or ceases to be effective, the stage of brawny hardness should be anticipated and prevented by the performance of lymphangioplasty. The only objection to this course is that the patient will underestimate the benefits she has derived from the operation, for prophylaxis is less striking than cure and earns less gratitude.

Erysipelas as a Cause of Lymphatic Œdema.

Lymphatic œdema sometimes, though rarely, supervenes on erysipelas in situations where the subcutaneous tissues are loose and easily distended by serous fluid. Its most common situation is the eyelids, though it may affect more or less the whole of the face. In such cases it is easy to imagine, though impossible to prove, that the lymphatic vessels of the part have been obliterated by an unusually severe lymphangitis which has swept through them like a prairie fire, leaving only fibrous cords to represent the vessels. No satisfactory treatment has hitherto existed for lymphatic œdema of the eyelids following erysipelas, and I was very anxious for an opportunity to try the effect of lymphangioplasty in such a case. In the absence of a suitable case I have been unable to try this method of operation. Priority in the application of lymphangioplasty to this class of case belongs to Mr. A. B. Mitchell of Belfast, who has recorded two successful cases. I am much indebted to Mr. Mitchell for supplying this conclusive evidence of the value of lymphangioplasty in post-erysipelatous œdema. These cases supply an additional proof, if one were needed, that the effects of lymphangioplasty in the limbs are not primarily due to the elevation which forms a necessary part of the after-treatment. The eyelids tend to drain by gravity either into the face or the scalp, whether the patient be standing or lying. Yet until the operation in each of Mr. Mitchell's cases the œdema had persisted unchanged for about two years.

The South Kensington Science Museum.—The President of the Board of Education has appointed a Departmental Committee to consider and report upon various questions in regard to the present condition and the future development of the valuable collections comprised in the Board's Science Museum at South Kensington and Geological Museum in Jermyn-street. In particular the committee are asked to advise him (*a*) as to the precise educational and other purposes which the collections can best serve in the national interests; (*b*) as to the lines on which the collections should be arranged and developed, and possibly modified, so as more effectively to fulfil these purposes; and (*c*) as to the special characteristics which should be possessed by the new buildings which it is hoped will shortly be erected on the South Kensington site to house these collections, so as to enable the latter to be classified and exhibited in the manner most fitted to accomplish the purposes they are intended to fulfil. The committee consists of Sir Hugh Bell, Bart., D.C.L. (chairman), J. J. Dobbie, F.R.S., LL.D., Sir Archibald Geikie, K.C.B., F.R.S., R. T. Glazebrook, D.Sc., F.R.S., Andrew Laing, M.I.C.E., the Hon. Sir Schomberg McDonnell, K.C.B., C.V.O., Sir William Ramsay, K.C.B., F.R.S., LL.D., Professor W. Ripper, D.Eng., M.I.C.E., Hon.M.I.Min.E., Sir W. H. White, K.C.B., F.R.S., LL.D., with Mr. F. G. Ogilvie, C.B., one of the secretaries of the Board of Education, as secretary.

The Goulstonian Lectures

ON

A CONTRIBUTION TO THE LOCALISATION OF CEREBRAL FUNCTION, BASED ON THE CLINICO-PATHOLOGICAL STUDY OF MENTAL DISEASE.

Delivered before the Royal College of Physicians of London on March 1st, 3rd, and 8th, 1910,

BY JOSEPH SHAW BOLTON, M.D. LOND., F.R.C.P. LOND.,

FELLOW OF UNIVERSITY COLLEGE, LONDON; SENIOR ASSISTANT MEDICAL OFFICER, LANCASTER COUNTY ASYLUM, RAINHILL, ETC.

LECTURE II.[1]

Delivered on March 3rd.

MR. PRESIDENT AND GENTLEMEN,—Before proceeding to the consideration of the results of my investigation of the cortex cerebri of certain selected cases of insanity I propose to refer briefly, from the clinico-pathological aspect, to certain abnormal and morbid appearances which are exhibited by the intracranial contents of the subjects of mental disease.

ABNORMAL AND MORBID APPEARANCES OF INTRACRANIAL CONTENTS IN MENTAL DISEASE.

With few exceptions, which are unimportant in this connexion, such abnormal and morbid appearances have long been well known, but, at any rate up to the time when I published my first paper on the subject, no attempt had been made to correlate these with any special symptomatology, and they had been described as common concomitants of the more chronic forms of insanity. Of these abnormal and morbid appearances, the more important are abnormal structure or wasting of the cerebrum, thickening and opacity of the pia-arachnoid, disease of the cerebral vessels, excess of intracranial fluid, subdural deposit, thickening of the dura mater, and abnormalities of the cranial vault. In two consecutive series of 200 and 233 cases of mental disease, from which cases of general paralysis and special examples of gross lesion, &c., were excluded, and in which both the clinical and the post-mortem aspects presented by these were systematically recorded, I was able to determine that an important correlation existed between these.

The cases of the first series were divided pathologically into five convenient though artificial groups—namely: (1) cases with or without abnormal but without morbid appearances; (2) cases with slight morbid appearances—namely, slight excess of intracranial fluid, slight thickening of the pia-arachnoid, which stripped rather more readily than natural, and slight or no cerebral wasting; (3) cases with morbid appearances of moderate grade—namely, intracranial fluid to the level of the tentorium, moderate thickening of the pia-arachnoid which stripped readily from the hemispheres, and a moderate degree of cerebral wasting; (4) cases with marked morbid appearances—namely, intracranial fluid well above the tentorium, much thickening and opacity of the pia-arachnoid which stripped very readily from the cerebrum, much wasting of the cerebrum, and, as a rule, marked disease of the cerebral vessels; and (5) cases with gross morbid appearances—namely, very marked excess of intracranial fluid, marked thickening and opacity of the pia-arachnoid which stripped like a glove from the hemispheres, gross wasting of the cerebrum, and almost invariable affection of the cerebral vessels which were usually markedly diseased.

On comparing the cases, from the aspect of symptomatology, with the post-mortem records, it was at once evident that these five groups corresponded, with few readily explicable exceptions, with five artificial clinical groups—namely: (I.) cases without dementia; (II.) cases with appreciable dementia; (III.) cases with dementia of moderate grade, i.e., the ordinary chronic lunatic with moderate dementia; (IV.) cases of severe dementia; and (V.) cases of gross dementia.

[1] Lecture I. was published in THE LANCET of April 2nd, 1910, p. 905.

Exactly similar results followed the study of the second and confirmatory series of cases; and I have since for some years been accustomed to prognose with certainty intracranial appearances in all but the rare cases in which I have been uncertain as to the clinical state of the patient.

AMENTIA AND DEMENTIA.

For reasons which I shall very briefly lay before you I was hence able to subdivide cases of mental disease into two types—namely: (1) cases which from the macroscopic post-mortem aspect exhibited abnormal, no abnormal, no morbid, or slight morbid appearances, and (2) cases which exhibited morbid appearances of any grade of severity and in some instances abnormal appearances also. The former group from the clinical aspect I class under the term "amentia," which I employ to connote *the mental condition of patients suffering from deficient neuronic development;* and the latter under the term "dementia," which I use to signify *the mental condition of patients who suffer from a permanent psychic disability due to neuronic degeneration following insufficient durability.*

The subjects of amentia, therefore, as I shall suggest from the macroscopic and prove from the microscopic aspect, suffer from a more or less marked grade of subevolution of the cerebrum. The chief clinical varieties of amentia are low grade amentia, or idiocy and imbecility with or without epilepsy, and high grade amentia, which includes "moral," unstable, and excited cases, together with cranks and asylum curiosities, recurrent cases of all types, hysteria, epileptic insanity, and true paranoia and allied cases.

Before referring to the question of dementia, a further explanatory description of this mental condition is necessary. The word "dementia," and particularly the word "demented," are employed by alienists for different purposes. Some speak of demented patients recovering, others regard almost any reasonably quiet chronic case as demented, and others, again, deny the possibility of in any way whatever correlating psychic states and material conditions of the brain, and regard such as a form of confusion of thought. It is therefore necessary, in addition to defining the term, to indicate the commoner symptoms which are presented by patients suffering from dementia. These, in brief, are as follows:—General dulness and apathy, a loss of initiative, and an indifference to their surroundings; a marked degree of stereotypism of all the mental processes, and an inability to learn new acquirements; a mechanical method of performance of known acquirements, a general stupidity and inability to understand when an attempt is made at correction of any kind, and a tendency to revert to accustomed modes of speech and action; finally, there is a tendency to the repetition of accustomed action which often shows that these have been performed in the entire absence of intelligent volition. This description, I may remark, in certain respects resembles that given by numerous experimental physiologists with regard to the motor exhibitions presented by certain lower vertebrates after removal of the cerebral hemispheres, and by certain higher mammals after removal of the frontal lobes.

The subjects of dementia, as I shall indicate both macroscopically and microscopically, suffer from a more or less marked grade of involution or dissolution of the cerebrum. I group such cases into a primarily neuronic class of senile, presenile, mature, and premature types; into a progressive and secondary class, which includes senile dementia associated with gross degeneration of the cerebral vessels, and, as the result of a special study, general paralysis also; and into a class of special varieties following sense deprivation, epilepsy, and cerebral lesions.

This generalisation of amentia and dementia is a gross one, and, as I shall indicate shortly, is based on the fact that cases of mental disease exhibit a lesion of the cortex of the prefrontal region of the cerebrum, which lesion, in the case of amentia, is of the nature of a true subevolution, and, in the case of dementia, is of the nature of a true involution or dissolution.

I would remark that the existence of amentia does not preclude the onset of dementia, that the necessary precursor of dementia is a more or less severe grade of mental confusion, and that mental confusion, when incited by temporary and removeable causes—e.g., alcoholic excess—is often entirely recovered from. Further, certain clinical indications are frequently, though not constantly, present which

enable a prognosis to be made as to whether a given case of mental confusion is recoverable or will result in dementia. Again, it is certain that recoverable mental confusion may occur in persons possessing normal cerebra. Lastly, mental confusion, followed by dementia, more commonly occurs in cases with cerebra of normal or relatively normal development, though probably of deficient neuronic durability, than in cases with cerebra which exhibit some grade of sub-evolution. The generalisation may, in fact, be made that the greater the grade of amentia the less is the tendency to dementia, not through a more normal durability of the cortical neurons of the former, but owing to the fact that cases of amentia so readily suffer from symptoms of mental alienation under any form of "stress" that, as a rule, little or no irreparable damage to the cortical neurons results.

The generalisation of amentia and dementia, I may remark, does not cover the subject of special symptomatology, which, as I hope to indicate but not yet to fully prove, depends on the degree of evolution of the cortex of the projection areas and zones of lower association of the cerebrum.

Of the abnormal and morbid intracranial appearances to which I am about to refer, the simplest, and that which is most readily determinable with accuracy, is the weight of the stripped cerebral hemispheres in the fresh state. In the following table are classified under the five groups which I have indicated the weights of the stripped hemispheres from 417 consecutive and unselected cases of mental disease.

Weights of Stripped Hemispheres from 417 Cases.

Group.	Total number of cases and condition.	Males.		Females.	
		Number of cases.	Average weight in grammes.	Number of cases.	Average weight in grammes.
		Normal.	589	Normal.	534
I.	61. No wasting	21	552	40	497
II.	95. No, or slight, wasting	21	564	74	485
III.	96. Moderate wasting	31	560	65	482
IV.	90. Marked wasting...	38	511	52	456
V.	75. Gross wasting ...	25	513	50	437

It is at once evident that the weights in all the groups are much below the average normal weight, which I have estimated from the recent statistics of Marchand. I do not lay stress on this point as Marchand's results were obtained from the brains of Hessians, although if to the weights of Group III. one added the 30 to 50 grammes which it is probable they have lost in consequence of wasting they would come approximately up to Marchand's figures. I would, however, indicate the obvious and important conclusion that the average weights of the hemispheres in Group III. must before wasting had occurred have been considerably greater than those in Groups I. and II. The average weights of the hemispheres of Groups IV. and V., in which severe and gross wasting had occurred, point to the same conclusion—namely, that the original weights in these groups must have been considerably greater than those in Groups I. and II., since the loss of cerebral tissue in the former groups cannot average less than about 100 grammes and may be much more, in view of the large amount of intracranial fluid which is present. The striking conclusion thus follows that the average brain weight of lunatics without intracranial morbid appearances is less than the original average brain weight of lunatics who exhibit these. In other words, the cerebra of Groups III., IV., and V. have fallen from a higher original level of development than that to which those of Groups I. and II. have attained.

[Certain abnormal and morbid appearances were then referred to, and the regions of wasting in dementia were described as follows:—(1) The greatest amount occurs in the prefrontal region. (2) The wasting is next most marked in the remainder of the first and second frontal convolutions. (In dementia paralytica Broca's gyrus should, as a rule, be included here, and (2) and (3) should follow (4).) (3) It is perhaps next most marked in the ascending frontal and Broca's gyri, though this grade should, in many cases at least, follow (4). (4) It is next most marked in the first temporal gyrus and the insula, and in the superior and inferior parietal lobules. In practically all cases it is more marked in the two former than in the two latter. (5) It is least marked in the remainder of the cerebrum (including the orbital surface of the frontal lobes), particularly the inferio-internal aspect of the temporo-sphenoidal lobe and the posterior pole of the hemisphere.]

I am of the opinion that exceptions to this general rder are invariably due to vascular or traumatic causes, and should therefore be excluded from the ordinary and normal wastings of dementia.

I will now show a number of hemispheres in illustration of the abnormal and morbid appearances which I have indicated. They are chosen on clinical grounds, being from cases in which I was interested and with the mental condition of which I was very familiar. [Of these illustrations the following three are selected, and are shown in Figs. 11, 12, and 13.]

Fig. 11 illustrates a large brain of rather simple pattern and without morbid intracranial appearances. The case showed no dementia. Figs. 12 and 13 respectively show cerebral wasting of moderate and severe grades (Groups III. and V.). The first of these exhibited a moderate degree and the second a severe degree of dementia.

[The conditions influencing the passage of cases from Group I. to Group III. were then indicated, and the influence of degeneration of the cerebral arteries in causing still further cerebral dissolution with passage into Group IV. and Group V. was referred to and summarised as follows:—*In a cerebrum which has begun to break down, or where degeneration has progressed to the "moderate" stage (Group III.), the presence of incidence of gross degeneration of the cerebral vessels will cause rapid progress of the neuronic degeneration, with, from the clinical aspect, gross dementia.*]

MICROMETRIC EXAMINATION OF THE CEREBRAL CORTEX IN MENTAL DISEASE.

I now turn to the second part of my subject—namely, the description of the results of the micrometric examination of the cerebral cortex. The series I am about to describe includes 30 cases, of which 4 are normals, and 26 are types of mental disease, which grade from the idiot on the one side to the gross dement and gross general paralytic on the other. In 12 cases the visuo-sensory and visuo-psychic regions, and in 17 cases the prefrontal, have been examined and measured, whilst in one, to which I shall refer in greater detail, all these regions have been exhaustively dealt with. From the theoretical aspect a series of cases in which all three regions had been studied would have been preferable. This, however, has not been possible, owing to the length of time occupied by the collection and examination of the material, and the great labour and particularly the eyestrain necessitated by such a method as that which I have been compelled to adopt. The micrometric study of the cortex by this method produces, however, such trustworthy and comparable results that the larger number of cases which I have thus been able to examine has widened the scope of the research without impairing the validity of the conclusions which result.

[Photographs of normal cortex and of cortices of cases of amentia and dementia were then exhibited.]

The final plate of this series (Fig. 14) shows the approximate depth of the cortex in a fœtus of six months, a stillborn infant, a case of severe amentia, a normal adult, and a case of severe dementia. Lines are drawn which include the second, and the third to the fifth laminæ, in order to show these more clearly.

I now come to the description of the results of the micrometric measurement of the cortex. I do not propose to describe the cases in detail or to trouble you with actual figures, as I have already dealt in detail with the method which I have adopted for the production of the general average measurements. I have therefore prepared the series of cases in percentages of the normal. I would remark that each case in itself represents the results of a small research, as the difficulties which have to be overcome in the preparation of vertical sections, which include a sufficient number of measurable regions, are considerable even before it is possible to begin the measurements. In several instances it has in fact been necessary to reject a likely case owing to

the impossibility of obtaining these, for in some cases either every block which one cuts turns out to be more or less oblique, or else some particular region, especially the flat surface or the bottom, is either oblique or missing. I may add that several cases, when ready for measurement, have required rejection owing to the existence of cerebral œdema.

On the plate (Fig. 15) are shown the general average measurements of 30 cases, grouped under visuo-sensory, visuo-psychic, and prefrontal regions. The cases are numbered to allow of identification, and those placed in the visuo-sensory and the visuo-psychic groups are the same. The cases included in each group are arranged on each side of the normals, those of amentia rising in order of mental capacity from the left-hand side, and those of dementia falling in order of grade of dementia on the right side. The visuo-sensory group includes one idiot, two imbeciles, a case of imbecility with premature dementia, two cases of recent acute insanity, and a case of simple acute mania of nine months' duration on the left-hand side of No. 8, the normal, and a case of epileptic dementia, two cases of blindness with dementia, a case of premature dementia, and a case of well-marked dementia on the right-hand side. The visuo-psychic group contains the same cases. The prefrontal group includes 5 cases of imbecility of different grades from severe to mild, 3 cases of recurrent and chronic insanity without dementia, 3 normal cases (the central one of which, No. 23, is taken as the basis for percentages), a case of imbecility with dementia, 2 cases of dementia of moderate grade, 1 case of well-marked dementia (No. 13, which is already included in the other groups), 2 cases of gross dementia, and 1 case of gross dementia paralytica.

In the visuo-sensory region the laminæ indicated are from above down the first or superficial layer, the second or layer of pyramidal cells, the third or granule layer, which is in this region duplicated, and contains in its midst the line of Gennari, the fourth or inner line of Baillarger, and the fifth or layer of polymorphic cells. It is unnecessary at present to do more than draw your attention to the markedly decreased depth of the line of Gennari in the two blind cases, Nos. 10 and 11, which detail proves that the region under consideration is the projection area for visual sensations.

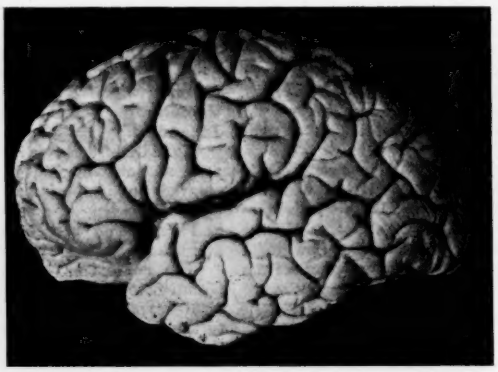
In the case of the visuo-psychic and prefrontal regions the laminæ indicated are from above downwards, the first or superficial, the second or pyramidal, the third or granule, the fourth or inner line of Baillarger, and the fifth or polymorphic.

In the case of the gross dements, Nos. 28 to 30, in the prefrontal region, I would indicate that the depth of the outer two laminæ as measured is not an accurate criterion of the actual loss of neurons, owing to the proliferation of the non-neuronic elements which, especially in No. 30, is so marked as to a considerable extent to neutralise the results of neuronic destruction.

It is, of course, impossible to indicate the general conclusions which result from the study of these measurements without dealing with the cell layers individually. The most important result is, however, perhaps sufficiently evident to be worth pointing out.

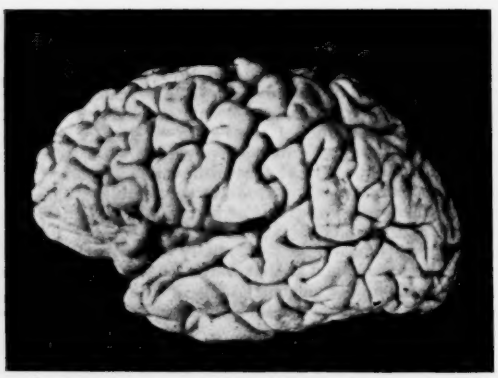
Taking the prefrontal region first, it is obvious that in this region a definite relationship exists between the depth of the cortex of the respective cases and the degree of amentia or dementia which existed. On the other hand, no such relationship exists in the case of the visuo-sensory and visuo-psychic regions, but an equally important conclusion may be drawn—namely, that great individual differences in depth are evident, in the former even more than in the latter, and that these individual differences not only bear no relationship to the degree of amentia or dementia which existed, but even in the case of the two regions differ in individual cases. The

FIG. 11.



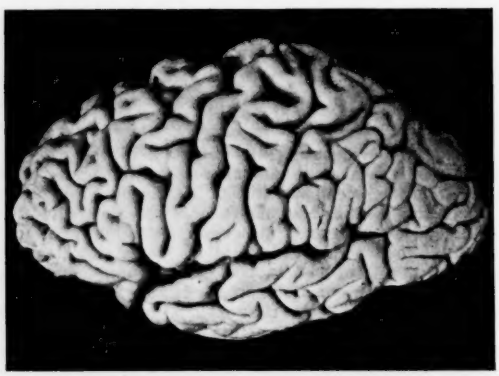
A female, aged 35 years, single. A drunken prostitute with over 50 convictions. Excitable, unstable, cunning, and very dangerous. A terror to the nurses owing to her violence and her unfounded accusations of ill-treatment. Cerebrum large and of rather simple pattern. Left hemisphere 618 grammes. No wasting.

FIG. 12.



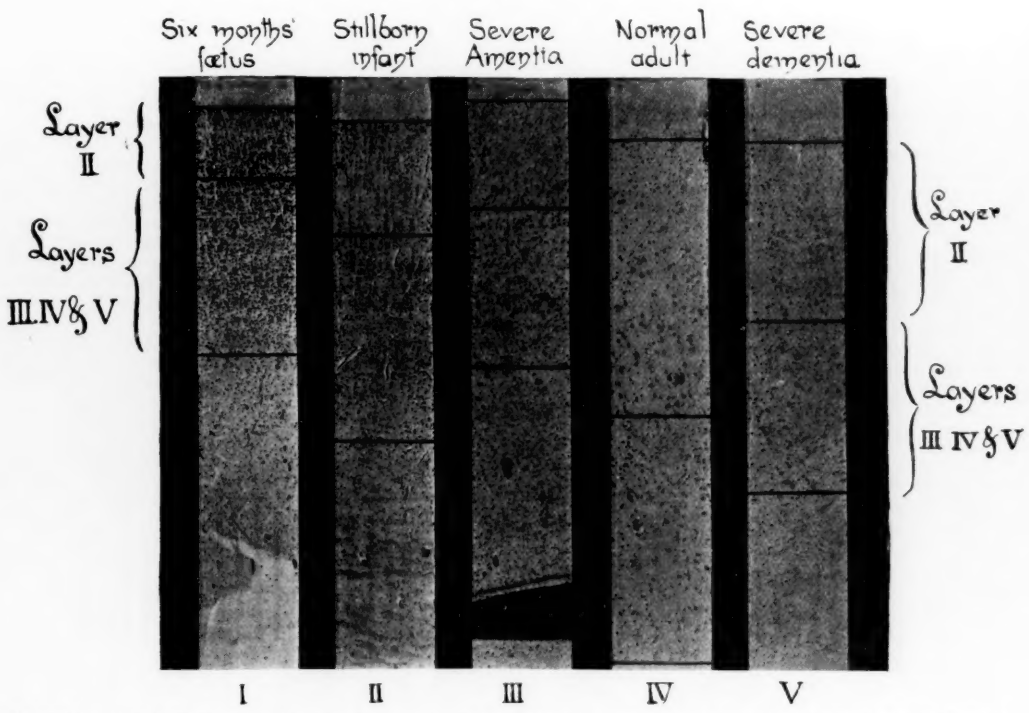
A male, aged 41 years, single, seaman. Duration of attack nearly 15 years. A case of chronic insanity who was at first depressed and confused. He then exhibited ideas of persecution, became grandiose, and eventually developed a moderate grade of dementia. Until he became demented he never spoke, refusing to communicate with others except by signs or by writing. Left hemisphere 525 grammes. Considerable wasting, chiefly in the prefrontal region. Several small softenings in the left hemisphere (cf. mental condition). Slight atheroma of the cerebral arteries.

FIG. 13.



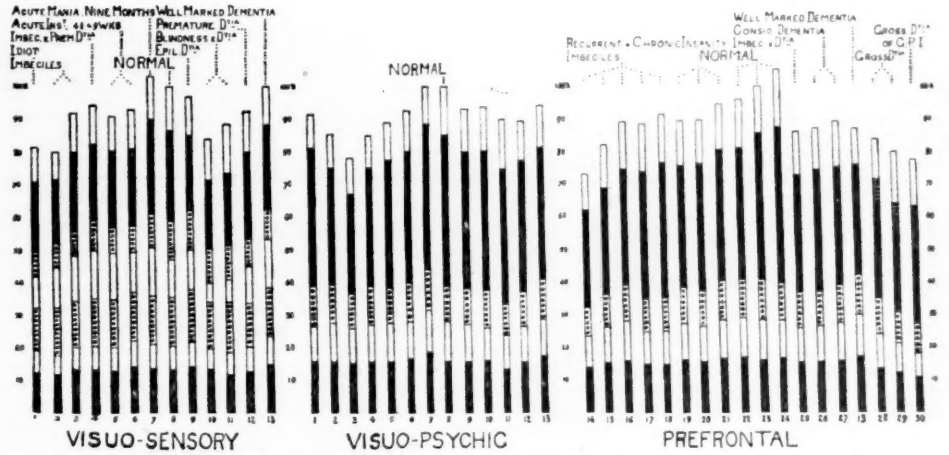
A female, aged 78 years, widow, housekeeper. Duration about three years. A case of marked senile confusion. She was lost to time and place, and restless. She undressed herself. She suffered from illusions of identity. She developed gross dementia. The cerebrum had originally been probably of above the average size. Left hemisphere 480 grammes. Gross cerebral wasting, which is especially marked in the prefrontal region. Some degree of asymmetry, the right hemisphere being of simpler pattern than the left. Gross degeneration of the cerebral arteries.

FIG. 14.



40 diameters. The development of the prefrontal cortex and its condition in amentia and dementia. Horizontal lines are drawn to indicate Lamina II., the pyramidal or associative lamina, and the combined III., IV., and V. laminæ. A comparison of columns I., II., and IV. indicates the relatively late development, and also the high degree of normal evolution of Lamina II. compared with Laminæ III., IV., and V. Column III. indicates the marked subevolution of the cortex which exists in severe amentia, and Column V. the marked dissolution of the cortex which occurs in severe dementia.

FIG. 15.



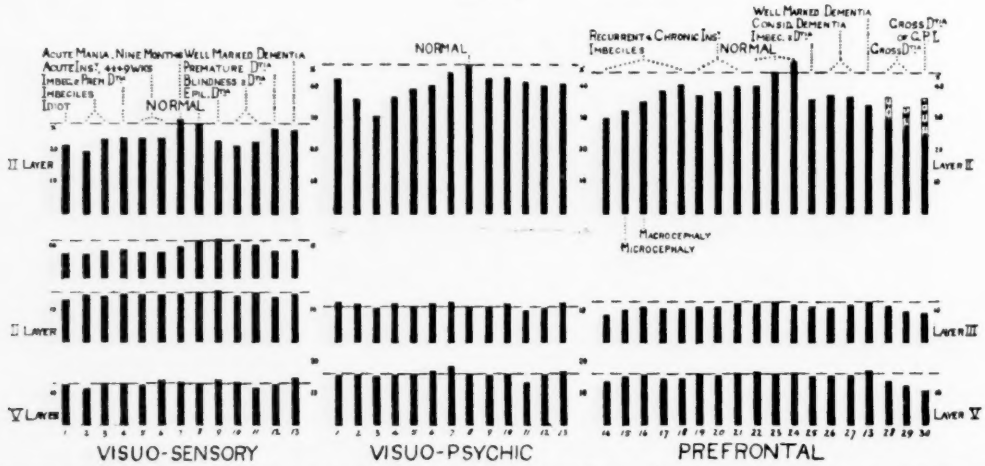
The general average depths, in percentages of the normal, of the cortices of 30 cases of various types. In the three series the cases are grouped on each side of the normals according to the grade of amentia and dementia. The numbers at the bottom of the columns indicate the several cases. The subdivisions of the columns from above downwards indicate the five laminæ of the cortex—namely, the outer fibre or superficial, the outer cell or pyramidal, the middle cell or granule, the inner fibre or inner line of Baillarger, and the inner cell or polymorphic. In the case of the visuo-sensory area, the receptive lamina consists of two layers of granules separated by an intermediate fibre layer, the line of Gennari, in which terminate the optic radiations, and which is much decreased in depth in Nos. 10 and 11, the two blind cases. The figure shows that, whereas in the prefrontal region the cortex varies in depth according to the degree of amentia and dementia, no such variation occurs in the case of the visuo-sensory and visuo-psychic regions. The further conclusions which are derived from a study of the individual cell layers are indicated in Fig. 16.

latter point is sufficiently evident if the first three cases are compared, since No. 1, an idiot, has poor visuo-sensory but good visuo-psychic measurements; No. 2, a well-marked imbecile, has equally poor visuo-sensory as, but rather worse visuo-psychic measurements than, No. 1; whilst No. 3, a moderate imbecile, shows fairly good visuo-sensory measurements but visuo-psychic which are much below those of either No. 1 or No. 2.

As the visuo-sensory region subserves the reception and the immediate transformation of visual sensations, and the visuo-psychic, as I indicated in the last lecture, is concerned with associational functions which have a special visual hall-mark, it may be concluded from these measurements that marked individual differences exist with regard to both these capabilities in the case of different subjects. The measurements thus afford anatomical proof of a clinical truth, which is, I think, generally recognised, in spite of the difficulty which attends its satisfactory exhibition.

In view of the possible criticism that the ages of the patients might to some extent explain the differences in measurement I would remark that these vary from 11 to 78 years, and that I have endeavoured, without success, to trace even a possible suggestion of any relationship between age and measurement.

FIG. 16.



The outer, middle, and inner cell laminæ of the 30 cases indicated in the last figure. (I.) The visuo-sensory area. Specialisation is marked, and is shown by the greatly increased depth and complexity of L.III., the middle cell or receptive lamina, and by the much decreased depth of L.II., the associative lamina, and the decreased depth of L.V., the instinctive lamina. Well-marked individual variation occurs in the cases of the outer cell or pyramidal lamina and the outer of the two granule layers. In this region the cortex does not vary in depth according to the degree of amentia and dementia. (II.) The visuo-psychic region. Specialisation is not marked but is indicated by the well-developed III. or granule lamina, and also by certain facts of evolution mentioned in Lecture II. Individual variation is well-marked in the case of the outer cell or pyramidal lamina. The cortex does not vary in depth according to the degree of amentia and dementia. (III.) The prefrontal region. Indications of specialisation and individual variation are practically absent. All the cell layers vary in depth according to the degree of amentia and dementia, and this variation takes place according to the order of normal development, L.V., the first to appear, being the least affected, and L.II., the last to appear, being the most affected. In amentia, therefore, the condition is one of true subevolution, and in dementia one of true dissolution or involution. In the case of numbers 28 to 30, the depth indicated in L.II., and to some extent in L.III., does not show the actual amount of neuronic loss, owing to the existence in these cases of more or less extensive reparative proliferation of the non-neuronic elements of the cortex.

CONSIDERATION OF PRIMARY CELL LAMINÆ.

I will now pass to the consideration of the individual primary cell laminæ—namely, the second lamina or pyramidal layer, the third lamina or granule layer, and the fifth lamina or layer of polymorphic cells. These, as abstracted from the last plate, I will now show on the screen (Fig. 16).

It will be convenient to first consider all the three regions together from the general aspect and then to deal with each region individually.

In the case of the fifth lamina, it is evident that its depth in the visuo-sensory region is considerably less than—namely, about 13/16ths of—its depth in the visuo-psychic and prefrontal regions, whereas it is of exactly the same depth in the two last. Further, in the visuo-sensory region seven of the 12 abnormal cases reach to or above the normal line, whereas in the visuo-psychic region only five of 12, and in the prefrontal region but three of 15, excluding, of course, the three normals, which all reach it. The fifth lamina is thus, apart from the normal difference in depth, slightly better developed in the visuo-sensory region than in the visuo-psychic, and is much better developed in both these than in the prefrontal. Further, in the prefrontal region alone does this lamina in the several cases exhibit a gradation in depth which varies according to the degree of amentia and of dementia. This lamina is the first to be evolved during the development of the cortex, and rapidly attains to approximately the normal depth. It is only reasonably below the normal depth in the prefrontal region of infants, well-marked imbeciles, and gross dements, all of whom are unable to attend to the ordinary bodily functions, such as feeding, the calls of nature, &c. This lamina has been shown by G. A. Watson, as the result of his study of the cortex of the chief orders of the mammalia, to be the best developed and the most important cell layer of the neopallium. It is, therefore, impossible to avoid the conclusion that the inner cell lamina is the fundamental cell layer of the cortex, and that it is concerned with the performance of the instinctive, in contradistinction to the receptive, the psychic, and the voluntary psychic activities.

I now turn to the third lamina or granule layer. This lamina is exceptionally developed and complex in the visuo-sensory area, consisting of two granule layers with an interposed fibre layer, the line of Gennari, in which terminate the optic radiations. In the visuo-sensory area the lower of the two layers of granules is normally much deeper than is the same layer in the visuo-psychic and prefrontal regions, whereas the upper is slightly deeper than that in the visuo-psychic and of the same depth as that in the prefrontal region. Of these two layers of granules in the visuo-sensory area both in the series of cases reach the normal depth in only one instance, and the lower layer is throughout much better evolved than the upper. In the visuo-psychic area the granule lamina reaches up to or above the normal depth in 9 of the 12 cases. On the other hand, in the prefrontal region it is uniformly below the depth of the highest of the three normals in all the cases and well exhibits a gradation according to the degree of amentia and dementia. Being the lamina which is exceptionally evolved in the projection zones of the mammalian cortex, and being thus the layer which is especially concerned with the immediate transformation of afferent impressions, it is interesting to note the great variation in the degree of evolution of this lamina in the visuo-sensory region of the series of cases, and also that

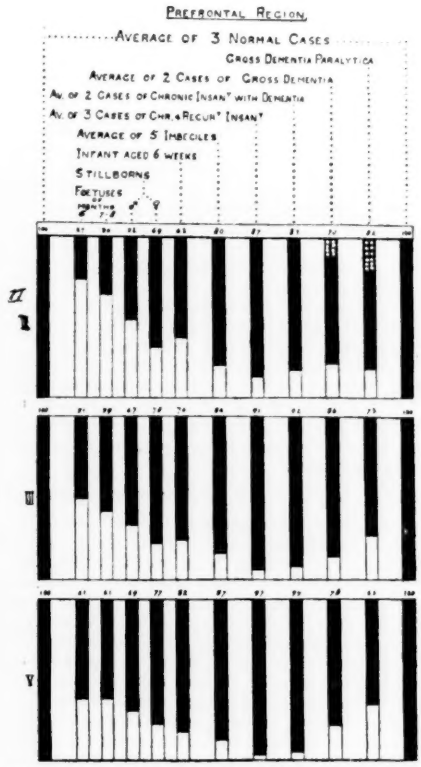
this variation is greater in the outer layer than the inner. I would further point out its relatively normal evolution in the visuo-psychic series and its subnormal depth in the prefrontal series.

It is, I think, easy to arrive at a reasonable explanation of these differences in degree of development. As I pointed out in the last lecture, the cortex of the visuo-sensory area is evolved earlier than that of the visuo-psychic, and this earlier than that of the prefrontal. It is, therefore, probable that in the case of the visuo-sensory area the individual differences in the middle cell or receptive lamina are indicative of individual differences in the functional capability of this lamina in different persons. On the other hand, in the prefrontal region the corresponding differences in the degree according to the existing grade of amentia or dementia.

I will now deal with the second lamina or pyramidal layer. This lamina passes the normal in one case in the visuo-sensory region, and in one of the three normal cases in the prefrontal region. In no other case does it reach the normal depth. In the visuo-sensory region it is in some cases better and in others worse evolved than in the visuo-psychic region. These differences bear no constant relationship to the degree of amentia or dementia. On the other hand, in the prefrontal region, the depth of this lamina varies directly according to the degree of amentia or dementia present. In normal evolution this lamina is the last of the cortical laminæ to be evolved, and it develops

FIG. 17.

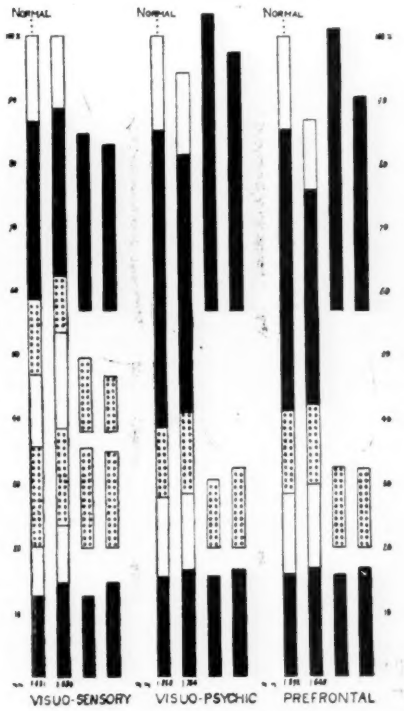
PERCENTAGES OF AVERAGE DEPTHS IN THE CASES OF LAYERS II, III + V, ALL TO THE SAME SCALE IRRESPECTIVE OF ACTUAL DEPTH



In this figure, for the purpose of direct comparison, the three cell layers of the prefrontal cortex of the cases which have been dealt with are averaged into percentages of the normal irrespective of actual depth. The figure proves that the inner cell lamina develops before the middle and the middle before the outer; that the same order of subevolution occurs in amentia, and that in dementia, if non-neuronic reparative proliferation of Laminæ II. and III. be allowed for, the last lamina to develop is the first to undergo dissolution, and the first the last.

FIG. 18.

MALE, AGED 66. WELL MARKED BUT NOT GROSS DEMENTIA. ENCEPHALON 1240 GRAMMES. WASTING SEVERE IN FRONTO-PARIETAL AND UPPER TEMPORAL REGIONS, BUT ESPECIALLY IN PREFRONTAL, AND OF AN UNUSUALLY PURE NEURONIC TYPE. CEREBRAL VESSELS NORMAL.



The figure shows, in comparison with the normal, the cortex of the visuo-sensory, the visuo-psychic, and the prefrontal regions of a case of well-marked dementia. From the aspect of total depth, the visuo-sensory area is normal, the visuo-psychic region shows a decrease of 6 per cent., and the prefrontal one of 13 per cent. In other words, the prefrontal region, which is the last to develop, shows the most affection, and the visuo-sensory area, which is the first to develop, shows the least. If the outer cell lamina or pyramidal layer be considered alone, there is a decrease of 6 per cent. in the visuo-sensory area, one of 13 per cent. in the visuo-psychic region, and one of 24 per cent. in the prefrontal. The middle cell lamina or granule layer exhibits an individual decrease in the visuo-sensory area, and is very well developed in the visuo-psychic and well developed in the prefrontal regions. The inner cell lamina is of a greater depth than that of the "normal" case in all the three regions, which fact suggests that the case under consideration was at any rate capable of development to a degree above that of this particular normal, even if this had not actually occurred.

middle cell lamina are simply greater in degree than are those in the inner cell lamina and less than are those in the outer cell lamina, and are therefore due to the fact that the cortex of this region is, as a whole, in a condition of subevolution or dissolution according to the grade of amentia or dementia. In other words, the granule lamina of the visuo-sensory cortex exhibits considerable individual differences in its degree of evolution in different persons; the granule lamina of the visuo-psychic cortex does not, being usually developed up to or above the particular normal with which they are compared; and the granule lamina of the prefrontal cortex exhibits degrees of subevolution and dissolution that are part of the subevolution or dissolution of the whole cortex, which occurs in this region alone and varies in in the visuo-sensory area earlier than in the visuo-psychic, and in the visuo-psychic earlier than in the prefrontal region. It is poorly evolved in the lower mammalia, but rises in its degree of development during the ascent of the mammalian scale, as has been shown by G. A. Watson and by Brodmann. It is therefore concerned

with the psychic or associational, in contradistinction to the instinctive, activities of the cortex. From the table of measurements it may be concluded that these psychic or associational activities are in man pre-eminent and voluntary in the prefrontal region, that they are of less general but of more specialised significance in the visuo-psychic region, and that they are of much less, but nevertheless very specialised, significance in the visuo-sensory area, in which the second lamina is normally but five-ninths of its depth elsewhere. Further, the individual variations in depth in the visuo-sensory and visuo-psychic regions of the series of cases point to real individual differences in the specialised functional capability of these regions, whereas in the prefrontal region the differences are not of an individual nature but vary according to the degree of amentia or dementia which existed.

To turn finally to the general consideration of the cortex of each of these regions, I would again remind you that in normal evolution the visuo-sensory cortex develops before the visuo-psychic and the visuo-psychic before the prefrontal; and also that the inner cell lamina is evolved before the middle and the middle before the outer. In view of these facts it is evident from the study of the different series of cases that the visuo-sensory cortex is rather better evolved and much more specialised and individually variable than the visuo-psychic; that the visuo-psychic is better evolved than the prefrontal and that it also exhibits well-marked indications of specialisation and especially of individual variation; and that the prefrontal cortex shows clear indication, not of specialisation and individual variation, but of subevolution or dissolution according to the grade of amentia or dementia. I would also indicate that, as the three normal cases show, the degree of its evolution varies considerably in normal individuals.

In the case of the visuo-sensory area the specialisation is indicated by the great depth and complexity of the third or granule lamina and the markedly decreased normal depth of the second or pyramidal lamina and the somewhat decreased normal depth of the fifth lamina, whilst the individual variation is chiefly visible, though not necessarily in the same direction or to similar degrees, in the outer granule layer and the second or pyramidal lamina.

In the case of the visuo-psychic region the specialisation is indicated by facts of normal evolution which I pointed out in the last lecture, and by the well-developed third or granule lamina, and the individual variation is especially evident in the second or pyramidal lamina.

In the case of both regions it may be added that, specialisation being allowed for, whether the cases are considered individually or collectively, the degrees of evolution of the laminæ follow the normal order, the inner cell lamina being better developed than the outer or middle.

In the case of the prefrontal region, whether the cases be considered individually or collectively, there is direct evidence of degrees of subevolution according to the grade of amentia and of degrees of dissolution according to the grade of dementia. Further, this subevolution or dissolution involves the whole cortex, and this according to order of normal development, the inner cell lamina exhibiting the least decrease and the outer the most.

Lest this should be doubted by any statistician present, on the ground that the layers are not of the same depth, and that therefore exact comparison is not possible, I have, in the plate which I shall now show (Fig. 17), averaged together the depths of the laminæ of the various types of case and turned these depths into percentages so that each lamina appears of the same depth. It will be seen that the inner cell lamina is the first to be evolved, and the outer cell lamina the last; that the same order of subevolution applies according to the grade of amentia which existed; and that, in the case of dementia, also according to its grade, the outer cell lamina which is the last to be evolved is the first to undergo dissolution, and the inner cell lamina which is the first to be evolved is the last to undergo dissolution.

I will now complete this part of my subject by describing a special case in which I have exhaustively examined all the three regions under consideration. As far as it is possible to judge, the patient, before his illness, possessed at least the normal degree of intelligence, and probably more. In the course of less than two years he gradually developed a well-marked grade of dementia which was unusually profound for a man 44 years of age who did not suffer from degeneration of the cerebral arteries. The cerebral dissolution was therefore of an unusually pure neuronic type; and it seemed to me, in view of the originally good development of the brain, that a better case could not well be found for the exhibition of the different grades of cerebral dissolution which might be expected to be found on examination of the visuo-sensory, visuo-psychic, and prefrontal regions of the cortex, since it was probable that all these, in their original condition, were of at least the normal depth.

The results justified my expectation in that they showed quite clearly that the order of dissolution is the converse of that of normal evolution, the loss being most marked in the prefrontal region, next marked in the visuo-psychic zone, and least marked in the visuo-sensory area.

The results of the examination of this case are shown in the following diagram (Fig. 18), in which are contrasted, in percentages of the normal, the general average measurements of the visuo-sensory, visuo-pyschic, and prefrontal regions. From the aspect of total depth the visuo-sensory cortex is normal, the visuo-psychic shows a decrease of 6 per cent., and the prefrontal one of 13 per cent. When the laminæ are individually considered there is, in the case of the outer cell lamina or pyramidal layer, a 6 per cent. decrease in depth in the visuo-sensory area, a 13 per cent. decrease in depth in the visuo-psychic region, and a 24 per cent. decrease in depth in the prefrontal region. The middle cell or granule lamina is much below the normal in the visuo-sensory area; it is well above the normal in the visuo-psychic zone and it is of practically the normal depth in the prefrontal region. The inner cell or polymorphic lamina is considerably above the normal depth in the visuo-sensory area and is well above it in the visuo-psychic and prefrontal regions. Whilst it is impossible to be certain as to whether the cortex was originally fully evolved or not, it is obvious that the visuo-sensory area possesses an individually deficient granule or receptive lamina, and had commenced evolution in a manner which should have carried it beyond the level of the normal case. The latter remark applies equally to the visuo-psychic and prefrontal regions. If, however, the cortex of this case be credited merely with evolution up to the level of the normal case, the significant fact appears that the pyramidal or psychic lamina has become decreased in depth by 24 per cent. in the prefrontal region, by 13 per cent in the visuo-psychic zone, and by 6 per cent. in the visuo-sensory area.

SUMMARY OF RESULTS OF MICROMETRIC STUDIES.

As a summary of the results of my micrometric studies I would remark that the human cerebral cortex is originally evolved from three primary cell laminæ, an inner or polymorphic, which is concerned with the performance of organic and non-voluntary activities; a middle or granule, which is receptive in function; and an outer or pyramidal, which serves as the physical basis of the associative functions of the cerebrum. The last of these, as has been shown by the investigations of John Turner and of G. A. Watson, is the distinctive feature of the cortex peculiar to the mammalia, or the neopallium, to employ the term introduced by Elliot Smith. These three laminæ appear during normal development in the order in which I have stated them—namely, from within outwards—and the cortex of the visuo-sensory area is evolved before that of the visuo-psychic zone, and this before that of the prefrontal region.

In cases of mental disease grading from idiots and imbeciles through various types of non-demented and partially demented lunatics to the gross dement, marked differences in the degree of evolution and dissolution of the cortex exist, which, considered from the general aspect, follow the order of normal development. In amentia the condition is one of subevolution to different degrees; and in dementia the laminæ suffer in the reverse order to that of their evolution, the most affected being the latest developed, and the least affected being the earliest developed. The degree and type of these differences vary according to the region of the cortex, whether this be a projection area, a zone of special association, or the prefrontal region. In the case of the visuo-sensory area the prominent features are poor evolution of the pyramidal and polymorphic laminæ, and specialisation of the granule or receptive lamina. There also exist individual variations in the degree of evolution of the granule or receptive lamina, and in that of the pyramidal or associative lamina, which individual variations bear no

relationship to the degrees of amentia or dementia which exist in individual cases.

In the case of the visuo-psychic zone, the important feature, apart from an especially good evolution of the granule or receptive lamina, is a marked degree of individual variation with regard to the depth of the pyramidal or associative lamina. This individual variation is not only independent of the existing grade of amentia or dementia, but also of the individual variation in this lamina which occurs in the visuo-sensory area.

In the case of the prefrontal region, both specialisation and individual variation are practically or entirely absent, and the cortex merely exhibits degrees of subevolution or dissolution which vary according to the grade of amentia or dementia which exists in the individual cases. That the condition is one of true subevolution is shown by the fact that the laminæ are subevolved in the order of their normal development, the last to appear being the least developed and the first the most. The reverse order holds with regard to dissolution, the last lamina to appear during normal development being the first to undergo retrogression in dementia, and the first the last. In the case of the cortex of the prefrontal region, therefore, the associative function of the pyramidal lamina may be regarded as "*voluntary* associative," in view of the fact that the essential feature of amentia and dementia is decrease, instability, or loss of voluntary control over the processes of cerebral association.

As a final remark I would add that there is reason to believe that this physical basis of the cerebral functions, which exhibits such well-marked variations in the subjects of mental alienation, exhibits equally important though less extensive variations in the case of presumably normal individuals, and thus indicates a structural origin for individual differences in mental endowment.

THE MODERN TREATMENT OF PULMONARY TUBERCULOSIS.[1]

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THE treatment of pulmonary tuberculosis, in common with that of most other diseases, has undergone many vicissitudes. With the discovery of the pathogenic bacillus by Koch the hopes of the profession all over the world rose, and it was believed that some definite line of treatment based on the destruction of the bacillus would soon be forthcoming. Consequently, all manner of efforts to kill the bacillus *in situ* by means of drugs were tried. Drugs which had been shown to have bactericidal properties were administered by the mouth, by inhalation, by subcutaneous injection, and by injection into the veins. Many observers claimed success by one or other of these measures, but no genuine advance was made, and one by one they dropped out of general use.

Improvement certainly seems occasionally to follow the administration of certain medicaments. Cod-liver oil, especially when combined with the hypophosphites, has been employed for years, and is still largely given. When the patient has a poor appetite, or when suitable food is unattainable, the oil has a beneficial action, and is so given largely in out-patient practice. In these circumstances it aids nutrition, but if appetite is good, digestion satisfactory, and sufficient good food can be obtained, its value is much lessened, its place being taken by the ordinary food matters. The prescription which has probably borne the test of time better than any other I consider to be the alkaline gentian mixture contained in the pharmacopœia of most of the hospitals—carbonate of soda or potash, gentian, and certain carminatives. Taken before food, perhaps with the addition of some tincture of nux vomica, it stimulates appetite and promotes digestion.

The creasote series of drugs have also been largely employed, either creasote in capsules, or guaiacol or its carbonates being most frequently used. Personally, I prefer creasote given in doses of one to three minims after meals, not on account of any specific effect that it may have on the tuberculous process, for I know of no proof of such an action, but to take advantage of its action in preventing fermentation in the intestinal tract, and so improving the digestive process.

The above measures are now combined with rest, abundance of good food, and the free access of air. Rest is essential if there is any rise of temperature during the 24 hours; I generally insist on confinement to the reclining posture if the temperature rises above 99° F. in men and 99·2° in women. If higher than 99·4° I think rest in bed is indicated. If the swing of the temperature is excessive, and the temperature rises above 100·5°, I advise *absolute* rest for some days; that is to say, treating the patient as for typhoid fever except as regards diet. Under such stringent measures a lower and more satisfactory range of temperature is frequently procured. A high, swinging temperature is frequently maintained by a hard, frequent, violent cough, and until the cough ameliorates the patient will undergo a series of auto-inoculations, effectually preventing a favourable progress. Sedatives should then be tried, a morphia linctus, heroin, codeia, or an inhalation of menthol (20 per cent.) and spirit of chloroform.

Nearly 20 years ago what was then termed the "open-air treatment" began to be adopted in this country, although for several years previously it had been carried out by Brehmer, Dettweiler, and other physicians on the continent. A more advanced method was introduced by Walther at Nordrach. One of the most important points of Walther's treatment was the insistence on graduated walking exercise, and this modification of the continuous rest which had hitherto been largely used was the introduction to the graduated labour treatment, to which I shall presently refer. In these preliminary remarks on the "open-air" treatment it is only fair to remind you that this method was advocated and carried into practice in this country as long ago as 1833 by Mr. Bodington of Sutton Coldfield. He published a book on the subject in 1840, and the manner in which his proposals were received by the medical profession at that time is exemplified by a review which appeared in THE LANCET in July, 1840. The following is an extract:—

> The modest and rational preface with which the author introduces to us his pamphlet on pulmonary consumption has so far influenced us in his favour that we shall merely give an outline of his principles, without expending any portion of our critical wrath on his very crude ideas and unsupported assertions. ..... The measures, then, which Mr. Bodington assures have been uniformly and completely successful in the treatment of several cases of tuberculous consumption are detailed. ..... More agreeable or seductive medicaments could not certainly be found in any pharmacopœia; fresh morning air to make the patient breathe; good wine to bring down his pulse, a good dinner to make him fat, and an opium pill to make him sleep, are all excellent remedies if they would only have the desired effects.

Mr. Bodington did not live to see the movement developed to its modern extent, nor, indeed, to enjoy the recognition of his shrewd observation and foresight. In a private letter to his son in 1866 he wrote: "I often think that, when I am dead and buried, perhaps the profession will be more disposed to do me some justice than whilst I live."

The "sanatorium treatment" has now been extensively tried in this country with encouraging results, but some observers have felt that the constant exposure to fresh air and abundance of good food did not fully account for the benefits received. Nevertheless, under the methods already mentioned, or, as more recently adopted, a combination of them, a certain amount of success has been obtained. The exact explanation of the improvement manifested is open to discussion. Until quite recently it was looked upon (and still is by some) as a hardening process. Certain vague terms were used such as "increasing the patient's resistance," or "rendering the tissues a less favourable nidus for the growth of the tubercle bacillus." To these considerations another pathological one may be added—namely, that the post-mortem records of the general hospitals show that of those patients dying from some other disease than tuberculosis, a certain percentage (about 12 per cent. at the Middlesex Hospital) manifest indications of arrested or healed tubercle in the lungs, showing that a spontaneous arrest or even cure is possible.

Satisfactory progress is made by many patients under the methods of treatment commonly employed, but in only too many no response follows, and even in a greater number the improvement is only temporary. Tuberculosis is a disease due to a specific organism. In addition to local

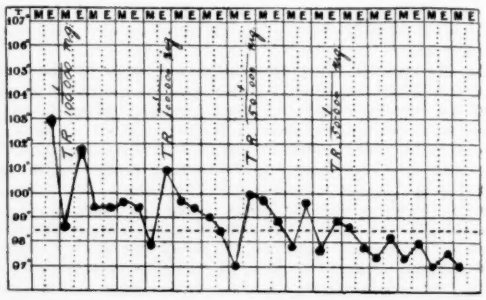
[1] Founded on a lecture delivered at the Medical Graduates' College and Polyclinic.

changes, constitutional disturbances are produced by means of the toxins, and in order to combat these effects substances must be brought into play that antagonise their action. The very valuable work of Sir Almroth Wright has had great influence in establishing a scientific basis upon which to work. The demonstration of the opsonins and the methods which permit of the opsonic index being taken formed the early steps in the elucidation of a problem which had hitherto defied explanation. Then followed the demonstration of an equally important phenomenon—that of auto-inoculation. Hetero-inoculation—the insertion of vaccines by artificial means—had been already practised, and it is an application of the two methods, hetero- and auto-inoculation, that forms the basis of the modern treatment of pulmonary tuberculosis.

I will first speak of hetero-inoculation, for in some instances this of necessity is the first stage. The rush to Berlin when Koch first introduced tuberculin may be remembered by some of you. Unfortunately, in the hands of most observers the method then adopted was a failure, although some physicians have never discarded it, and still claim for it success. When Sir A. Wright first introduced the opsonic index as a guide to the inoculation of tuberculin he insisted on the necessity of not repeating a dose of the remedy until the effect of the previous one had passed off. I consider this of great importance, and it is upon this principle I always act when employing tuberculin. The German method of administering the drug is to push it until a febrile reaction occurs. I do not agree with this plan, and, moreover, it has the disadvantage of being only applicable to afebrile cases. Sir A. Wright clearly demonstrated that the machinery of immunisation could be brought into action by very small stimuli, and that it could very easily be over-taxed. The chief drawback to Sir A. Wright's method is the technique required to estimate the opsonic index; this is so complicated that only a few experts can obtain uniform consistent results. Dr. A. C. Inman, however, has demonstrated a ratio between the curves of the opsonic index and temperature. Working on these lines I always employ very small doses in the following way.

I have hitherto only tried tuberculin in cases in which there has been a rise of temperature. I know that it has been stated that these are unfavourable ones, but they are precisely those in which some new method of procedure is urgently needed. If the remedy is only employed in afebrile cases it is difficult to ascertain the amount of benefit derived; such cases generally progress favourably by the ordinary routine methods, and it is by employing new methods in afebrile cases that so many "cures" for the disease are so frequently announced. In order that a definite conclusion can be arrived at in such instances, a lapse of several years (I should name seven as the minimum) is necessary in order to watch for relapses. I can, of course, only state my immediate results, but I can say this: that I am encouraged by the progress of many of the patients, although I chose such unsatisfactory material to work upon, and I believe that as experience is gained the method will be improved. One of the difficulties at present met with is to judge how far to push the doses. I commence with 1/100,000th milligramme of tuberculin (T.R.) given by the mouth. I usually advise it to be taken with a little milk. If it is administered hypodermically half the above dose is the equivalent. It is best given on an empty stomach. Further, I order it to be taken when the temperature is raised. If, therefore, the temperature curve is of the ordinary type, 10.30 P.M. is a convenient time, but if the type is inverse, then early morning is the right time. My object in thus giving it is as follows. Dr. Inman has shown (and his researches have been corroborated by other observers) that the opsonic index varies inversely with the temperature—i.e., when the temperature is high the index is low, and *vice versâ*. Further, there is a slight delay in the movement of the temperature following that of the index. For instance, the index has begun to rise before the temperature has begun to fall; consequently, if the tuberculin is given at 10.30 P.M. in all probability it is being administered on a rising opsonic index—that is to say during the commencement of the positive phase, and that I believe, from clinical experience, is the most advantageous period to give it. The effect on the temperature is carefully watched and the patient's general symptoms are noted. As I have before said, it is important not to give a second dose before the effects of the previous one have passed off. If the dose has had a definite favourable effect there will be produced a "flattening" of the temperature curve; the degree of flattening varies. (Fig. 1.)

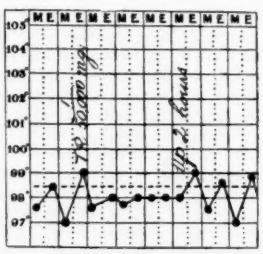
FIG. 1.



I do not think that it is desirable to obtain a febrile reaction, although I am aware that this practice is contrary to that of some other physicians, and, as I have already said, if the temperature has been previously raised it is difficult to judge by the chart if an excessive dose has been given. Certain symptoms, however, are suggestive of the action of too large a dose, especially headache, loss of appetite, undue quickening of the pulse, and occasionally pain in the side. If these phenomena present themselves, the next dose should be smaller. If no effect is produced in about 48 hours, a larger dose is given, that is to say 1/50,000th milligramme, and the effect is again noted. If a flattening of the curve is produced, one must wait until the temperature again begins to swing before another dose is given, then the same dose is repeated. If then no effect is produced, a larger dose may be given. In some instances the same dose may be successful in producing an immunising action on several occasions, before an increase is found necessary. In this manner the dose is gradually increased. I do not usually go beyond 1/2000th milligramme, but I should not hesitate to do so if I thought occasion required it.

I have tried this method in numerous cases, and with encouraging results. In some cases, however, no effect has been produced. In a few the temperature has been markedly lowered, the antipyretic action of the tuberculin being most marked (Fig. 2); in most cases of this class, however, the

FIG. 2.



disease was very active and extensive, and no permanent good could have been hoped for; nevertheless, the temperature was reduced, and the patient felt relieved, but no apparent effect was made on the course of the disease. The class of case in which the most favourable results were obtained was that in which the temperature was afebrile or exhibited only slight rises whilst the patient was kept confined to bed, but as soon as he was allowed to get up an irregular temperature was at once manifested. When the method of treatment I have described was adopted, the case at once assumed a more favourable aspect. I look upon this type of case as one in which the individual is not able to control auto-inoculation, which occurs as soon as exercise is taken. I think one is justified in assuming that by gradually increasing the amount of tuberculin the patient is gradually rendered immune to the amount of "tuberculin"

which he himself can manufacture, so that subsequently he can take an increasing amount of exercise without any bad results.

I now come to speak of auto-inoculation. For want of a better term I shall assume that the patient inoculates himself with a substance similar to the manufactured "tuberculin." In acute cases the auto-inoculations occur irregularly and there seems to be but little control over them. In other cases auto-inoculation only takes place when the patient is up and taking exercise. To quote the words of Sir A. Wright: "Auto-inoculations follow upon all active and passive movements which affect a focus of infection and upon all vascular changes which activate the lymph stream in such a focus."

I have already mentioned that some observers were not satisfied with the explanations given for the beneficial effects undoubtedly conferred by "sanatorium treatment." Dr. M. S. Paterson, the medical superintendent of the Brompton Hospital Sanatorium at Frimley, observed that many tuberculous patients who had followed their ordinary occupations up to the time of admission were in a very fair condition of health. Acting on this he has evolved a system of treatment known as the "graduated labour" treatment of pulmonary tuberculosis, though this is no longer an accurate title, as rest, or "graduated rest," is now an important element. I may at once say that this method of treatment can be perfectly well carried out in private practice provided that its principles are thoroughly understood, that the patient is willing to place himself under the directions of his medical attendant, that the supervision can be constant, and that the requisite garden or piece of land is near in which the "labour" is to be conducted. At first the treatment was carried out empirically, but Dr. Inman made the very interesting and valuable observations that the opsonic indices in the patients under treatment indicated that the exercise supplied the stimulus necessary to induce artificial auto-inoculation, and that systematic graduation of exercise will regulate auto-intoxication in point of time and amount. Dr. Paterson has since found that with the aid of the opsonic index he can regulate the stimulus with scientific accuracy and obtain his results more certainly and more rapidly. For the two original papers by Dr. Inman and Dr. Paterson respectively I refer you to THE LANCET of Jan. 25th, 1908.

As I have said, the same treatment can be carried out in private. The first essential is that the patients must be in the afebrile stage both whilst at rest and on slight exertion. I always advise that the temperature should be taken three times a day—at about 8 A.M., between 4 and 6 o'clock in the afternoon, and again at night. If the temperature does not rise above 99° F. in the 24 hours whilst the patient is in bed, he is allowed up for two hours and allowed to move about slowly; the time is gradually increased until he is up all day, only a very slight amount of walking exercise being allowed. When he is proved to be afebrile under these conditions he is told to walk a measured mile at the rate of two miles an hour, then to rest for half an hour, and then to take his temperature. I have always found the mouth temperature perfectly accurate for all practical purposes provided that the thermometer is allowed to remain at least five minutes in the closed mouth. As there are obvious objections to the inconvenience of taking the rectal temperature this is an advantage. It may be misleading to take the temperature immediately after exercise. The temperature of a healthy individual is often raised by exercise, but speedily regains the normal, whilst in a tuberculous subject, not yet able to control his own inoculations, the temperature may remain raised for some hours. If the temperature remains below 99° after this amount of exercise, and the pulse is not unduly quickened by it, on the following day he is allowed to walk one mile in the morning and one in the afternoon, under the same conditions. The length of walk is thus gradually increased until three miles are walked in the morning and three in the afternoon.

I must here pause to call your attention to another point in connexion with the temperature chart. In carrying out this method of treatment the swing of the temperature is of importance, even if the swing be subnormal. A satisfactory response to the exercise is the same as after the administration of tuberculin—namely, a flattening of the curve. If, therefore, the swing is a wide one, the increase in the amount of exercise must be regulated with much more care than when it is small, and other symptoms of over-dosage must be watched for. The first to be noticed is generally loss of appetite. A patient undergoing "graduated labour" should proceed to his meals with a good appetite and readily dispose of the food placed before him. If he toys with his meals further inquiry will probably elicit that he is not feeling perfectly well and is listless, and in most cases he admits to a headache. Under such circumstances he must be directed to rest on his bed for the remainder of that day and perhaps for the following day also. If the overdose has been excessive a pain in the side is also a common symptom.

If the six miles of walking exercise is accomplished successfully light manual labour is allowed, first for one hour, gradually increased to six—three hours in the morning and three in the afternoon. A rest of one hour before the midday meal is important. This should be rest in the reclining posture and not merely sitting in a chair, and this is to be absolutely enforced during the earlier stages. During the whole of the treatment the guide of the temperature chart must not be relaxed. The nature of the manual labour must, of course, be guided by circumstances. Carrying light weights up a slight incline is a good commencement. By light weights I suggest small baskets full of leaves, sand, or gravel; then heavier baskets carried longer distances. Then hoeing in broken ground or the use of a light rake. The presence of a chicken-run is, of course, most helpful, as offering various forms of "labour." The test used at Frimley to indicate that a patient has approached the end of his course of treatment is, that he can work for six hours daily with a navvy's heavy pick and shovel without exhibiting any signs of auto-inoculation, showing that he is immune to the dose that that amount of work can evoke. In addition, the symptoms of disease should have practically disappeared, although there is still sometimes a slight amount of sputum in the morning. The physical signs may not have completely disappeared, and the indications of a healing or arrested lesion may, of course, be present for some considerable period. The length of time required for a complete course naturally varies with each individual case, but four months may probably be taken as the minimum.

It is not very often that the effects of an excessive dose are manifested if the patient carefully follows his medical attendant's orders. To avoid this I think it is very wise to take the patient into one's confidence—to explain to him in simple language the rationale of the treatment, and to tell him something about auto-inoculation and its dangers. Some patients are intensely stupid and dense in spite of these precautions. It is not uncommon, even in the private sanatoriums, where some guineas are paid weekly, for a patient to "fake" his temperature in order not to be kept in bed. Anything more foolish can scarcely be imagined; the only person injured is the patient himself, and in consequence he may be thrown back several weeks. The majority of the patients readily realise that the medical man knows more than they do about the disease, and so faithfully follow out instructions.

An overdose is generally due to exceeding instructions. For instance, a man on light basket work may take hold of a heavy shovel and dig vigorously with disastrous results. Therefore constant and strict supervision is required in the early stages of the treatment. Should the results of an overdose manifest themselves absolute rest for some days is indicated—that is, treating the patient as though he were suffering from typhoid fever. In three days or so the temperature will again become normal, when graduated rest may be employed. The patient may be allowed to wash himself in bed; next day he is allowed to do away with the use of the bedpan, then to be up for one hour, and so on. In this way the effects of over auto-inoculation are best combated.

From the various facts and methods which I have considered I would contend that the modern treatment of pulmonary tuberculosis rests upon the establishment of immunity. In order to procure this, it is, in the first place, necessary to prevent excessive auto-inoculation. The method most likely to effect this result is rest. Hence the benefit that accrues by the routine treatment hitherto adopted at special hospitals and sanatoriums—rest in bed until the temperature is normal. Subsequently the production of auto-inoculation by suitable exercise, rendering the patient immune to increasing doses of self-manufactured tuberculin. If this is not possible, then immunity may be induced by hetero-inoculation.

Harley-street, W.

THE EFFECTS OF A SERUM UPON A CARCINOMA OCCURRING IN MICE.

BY CHARLES WALKER, M.SC. LIVERP., M.R.C.S. ENG., L.R.C.P. LOND., &C.

IN THE LANCET of Sept. 12th, 1908 (p. 797), some experiments with two sera upon a carcinoma occurring in mice were described. In the belief that the cells both of the testis and of malignant growths are out of coördination with the rest of the cells of the body, rats were injected with an emulsion of the living cells of the testis of the mouse, in the hope of producing in the serum of the rat something which would be destructive to all those cells in the mouse which were out of coördination with the rest of the body. The same thing was done in other rats, substituting a preparation of the cells of the carcinoma for those of the testis. The sera obtained from the rats were injected into mice with already well-developed carcinoma, and the results of these injections were summarised as follows:—

1. In 743 mice not treated with either of these two sera the tumours in two have dried up and dropped off spontaneously. 2. In a batch of ten mice treated with testis serum obtained 14 days after last injection of rat, the tumours in seven became suddenly gangrenous. In one the tumour dried up and came away. 3. In a batch of ten mice treated with tumour serum obtained 14 days after last injection of rat, the tumours in seven dried up and came away as small scabs. 4. In mice treated with testis or tumour serum taken from rats killed eight days after the last injection, the tumours became markedly hyperæmic. They did not in mice treated with normal rat serum. They also grew more rapidly than the tumours in mice treated with normal serum. 5. In mice treated with testis or tumour serum taken from rats killed 14 days after the last injection, tumours grew at much less than half the rate of the tumours in mice treated with normal rat serum.

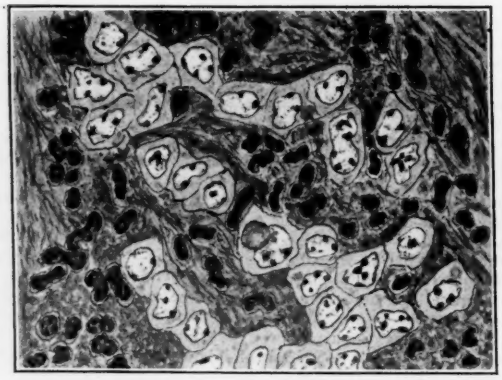
These experiments were subsequently repeated and similar results were obtained, but negative results followed the injection of the serum of rats treated with the testis of rabbits and guinea-pigs into mice suffering from carcinoma.

Returning to the original serum obtained by the injection of mouse's testis into the rat, the following experiments were conducted with a view of finding out whether the clinical results could be confirmed by the action of the serum upon the tumour cells *in vitro*. The serum was prepared in exactly the same way as described in the communication already referred to. Small portions of the mouse carcinoma (about 2 millimetres in diameter) were placed in the serum immediately after removal from the mouse, and were then kept in an incubator at 36° C. At the same time similar portions of the same tumour were placed under similar conditions in normal rat serum. In order to insure as far as possible similar portions of tumour being placed in the normal and in the active sera, the following precautions were taken. The most healthy and active portion of the tumour is usually at the periphery. The healthy and growing portion of the tumour has a semi-translucent appearance as compared with those portions where a number of the cells are breaking down. Familiarity with the naked-eye appearance of the tumour makes it comparatively easy to choose healthy portions. In this case slices about 2 millimetres thick were cut from the periphery of the tumour, and, discarding all but those parts which appeared healthy, was cut into small cubes

FIG. 1.

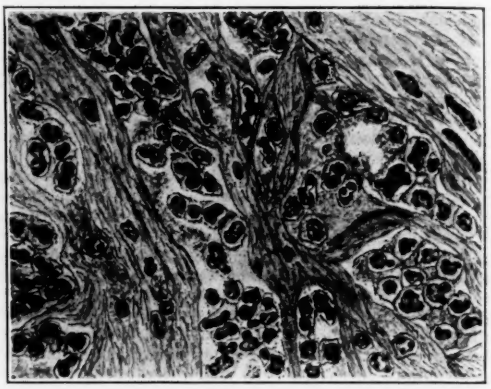
Microscopical appearance of piece of tumour fixed immediately after removal from mouse.

FIG. 2.



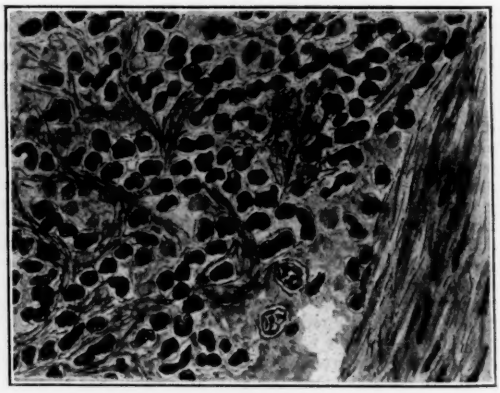
Microscopical appearance of piece of tumour after being for 48 hours in normal rat serum.

FIG. 3.



Microscopical appearance of piece of tumour placed in testis serum for 48 hours.

FIG. 4.



Microscopical appearance of tumour from mouse after treatment with testis serum.

of about 2 millimetres in diameter. Adjacent pieces were placed, one in the active and one in the normal serum. Moreover, several pairs of cubes from different portions of the tumour were treated in this way.

After these pieces of tumour had been left in the sera for 48 hours they were removed, fixed, sectioned, and stained. From microscopical examination it was evident that the majority of the cells present in both series of sections were alive, but here the resemblance ended. In the pieces of tumour which had been for 48 hours in normal rat serum a large number of apparently healthy tumour cells were present. The comparison of Fig. 1, which represents a piece of tumour fixed immediately upon removal from the mouse, with Fig. 2, which represents a portion of the same tumour fixed after being left for 48 hours in normal rat serum at a temperature of 36° C., shows that although a number of typical tumour cells are still present they have been replaced to a considerable extent by leucocytes, connective-tissue cells, and débris. In the case of the portions of tumour placed in the serum of rats treated with mouse's testis, the typical appearance was that shown in Fig. 3. In no instance in the many sections prepared from several portions of the tumour thus treated was a single unmistakeable tumour cell still visible. The number of small round cells and polymorphonuclear leucocytes is enormously increased. There is a good deal of débris, but still a number of apparently healthy cells are present, which have taken the place of the tumour cells.

It will appear then, that while normal rat serum, under the conditions described, leaves a large number of the cells of this particular carcinoma in mice in an apparently healthy condition at the end of a period of 48 hours, the serum of the rats treated with mouse's testis produces a destruction of the tumour cells, although, it apparently allows, at the same time, other cells to proliferate. A large number of these small cells which take the place of the cancer cells are apparently leucocytes. A comparison between them and the spleen and the bone marrow of the mouse makes this obvious without going into particular details. It is, of course, possible that some of the cells may not be normal leucocytes or derived from leucocytes. The conditions being obviously abnormal it is only to be expected that if they are all of them leucocytes, as I am inclined to think, the appearance in many cases must vary considerably from the normal varieties of leucocytes. A large number of them, however, are typical, being mainly lymphocytes and polymorphonuclear leucocytes. Some, too, contain granules. There is also apparently an increase of connective tissue cells.

There is, of course, a possibility that some of the cells found after treatment with the testis serum may be modified cancer cells. While it is at present impossible to make an absolutely definite statement with regard to this point, it seems very improbable. No intermediate cells between the cancer cells and those existing after 48 hours in the incubator are to be found. We go straight from the unmistakeable cancer cell to cells which possess not a single one of their characteristic features, and which are never more than about a quarter of their size. It is the same in the case of the tumour treated with normal rat serum. The cancer cells which have survived still possess the characteristic features, and are quite unmistakeable. The small cells are far more numerous than they are in the tumour fixed immediately upon removal, but there are no signs of intermediate stages. On the other hand, every gradation between the typical leucocyte or connective tissue cell and the cells found in the tumour after treatment, both with normal and testis serum, are easily traceable. While, therefore, it seems highly probable that the cancer cells are replaced by leucocytes or by cells derived from leucocytes, there is no evidence whatever that the cancer cells become modified into the smaller cells.

Another point is the comparison between the microscopic appearance of the tumour from a mouse which has not been treated, and that of a tumour which was diminishing in size after ten days' treatment of the mouse with testis serum. (Fig. 4.) Here the cancer cells had completely disappeared and were replaced by leucocytes, and possibly other small cells, although, for the same reasons as those given above, I take them all to be leucocytes.

If this interpretation be correct, it will appear that what happens upon the treatment of a mouse suffering from cancer with the testis serum is rather the stimulation of the leucocytes to multiply and replace the cells of the tumour than a direct destructive influence on the part of the serum upon the cancer cells themselves.

The same experiments were performed with tumour serum, and results similar to those described here as having followed the use of testis serum were obtained. As, however, the tumour serum experiments were only carried through once, while the testis serum experiments were repeated, it is not proposed to give the details of the former. The testis serum, though it did not give in the experiments done upon cancerous mice as good results as the tumour serum, is probably of more importance as being of more general application.

Some attempts were made in conjunction with Dr. Ernest E. Glynn to demonstrate the effect of the serum by mixing it with emulsions of the cancer cells. Emulsions of the cancer cells were made with normal saline solution and mixed with serum, and in some cases leucocytes from the mouse were added. It was impossible, however, to arrive at any certain conclusions by these methods. If any differences existed between the cells that had been kept in normal and in testis serum they were of such a nature as to escape our observation, and the best preparations that could be produced were insufficient to give any satisfactory evidence.

Liverpool.

EXPERIMENTAL DIMINUTION OF RESISTANCE TO MOUSE CANCER.

BY ARCHIBALD LEITCH, M.B. GLASG.,
PATHOLOGIST TO THE CAIRD CANCER RESEARCH LABORATORY, DUNDEE.

AFTER the difficulties attending the propagation of cancerous tumours in mice had been overcome, the problems of the modification of resistance to inoculation at once presented themselves. Many attempts have been made to protect mice by vaccination against subsequent injection of cancer material, but up to the present time only a certain measure of success can be said to have attended these efforts. It was found that in many cases the injection of mouse cancer cells failed to produce tumours, or that after a brief growth the tumours retrogressed and were absorbed, and that in such cases subsequent inoculation of cancer was without effect—a sort of immunity had been produced. The serum of these resistant animals did not seem to contain anything in the nature of an antibody specifically directed against cancer cells. It was no more efficacious in preventing growth when tried on fresh animals than was normal mouse serum. The latter did, however, sometimes give an apparent, though feeble, protection. The most promising results were obtained by vaccinating the animal with living cancer cells. Generally speaking, a certain quantity of material, which varies with different tumour strains, is necessary for the production of tumours; and by diminishing the necessary minimal dose, or in some cases by increasing the maximum dose, a condition was frequently produced whereby the animals proved resistant to the ordinary dose used as a test. Often, however, the "protecting" inoculation failed to have this effect, and even in many cases it, by itself, gave rise to tumour growths. Exposure of tumour cells to extreme cold—e.g., that of liquid air, or the preservation of tumours removed from animals for long periods of time, did not succeed in absolutely destroying the proliferative capacity of the cells. Chemical reagents or heat, though destroying this capacity of growth, destroyed also the chemical constitution of the cell protoplasm, and material so treated was without effect in protecting animals against subsequent inoculation with living cells. The injection of mouse embryo epithelium, however, gave promising results when used to vaccinate mice against squamous-cell carcinoma and to a small extent against adeno-carcinoma. From a survey of these attempts it might have been concluded that success followed where the vaccinating material was deprived of proliferative power and chemically unchanged, and that it failed when either of the opposite conditions obtained. If, then, we could destroy the physical constitution of cancer cells without alteration of their chemical constitution it might be supposed that we would have in our hands a more certain protective material.

After many attempts, into which I shall not enter here, I used the following method for disintegrating the cells. Transplanted tumours of one particular strain were removed from several mice, and after being roughly disintegrated

with small scissors were thoroughly triturated in a mortar with fine silver sand. The resulting pasty mass was transferred to bottles containing sterile saline solution and the whole shaken up. Strict aseptic precautions were, of course, observed throughout. The bottles were kept in a cold chamber for two days, and thereafter the subsequent fluid was decanted into test-tubes, which were kept at freezing point until required. This fluid remained turbid for at least a month, though there was a gradual accumulation at the bottom of the tubes; it was bacteriologically sterile and did not contain living cells as far as could be observed by microscopic examination or the results of injection. The chemical nature of the protoplasm was presumably not altered. (It may be noted that even advanced autolysis does not prevent growth on inoculation.)

The fluid was injected into the peritoneum of a number of mice on three occasions with ten days' intervals, employing for the first injection 0·5 cubic centimetre and 1 cubic centimetre for the last two. As the material was not standardised, it can only be said that in comparison with the ordinary quantity of tumour emulsion used for transplantations (in this case 0·05 cubic centimetre) it represented an excessively minute dose of epithelium. 24 days after the last intraperitoneal injection the 29 mice that survived were inoculated subcutaneously in the usual way with 0·05 cubic centimetre of fresh tumour emulsion. A similar number of controls were instituted.

The treatment, instead of increasing the resistance to test inoculation, had a marked effect to the contrary. In ten days' time, of the 27 treated mice that remained alive, 18 showed tumours; a week later, 21 out of the 27 (78 per cent.) had growing cancers. The controls gave 9 tumours in 27 mice (33 per cent.). There is a striking disparity between the two sets. But this disparity is all the more marked when we take into account the size of the tumours produced in both cases. By carefully mapping out the contours of the tumours on graph paper it was found that the average area covered by the tumours in the treated set was approximately 110 square millimetres, as compared with an area of 39 square millimetres in the case of the controls. The average mass is much larger.

The tumour used throughout these experiments was an adeno-carcinoma—"No. 63" of the Imperial Cancer Research Fund list—and I am deeply indebted to the superintendent of these laboratories for his kindness in placing material at my disposal. For a few months this tumour grew well, succeeding in a very high percentage of cases. Thereafter the successful "takes" rapidly diminished until it failed completely. This has proved a fortunate accident as far as these experiments are concerned. For my test inoculations I was confined to a single tumour 3½ months old which had been growing very slowly and which did not show the central necrosis so common in this strain. The sudden resuscitation in the treated series is all the more remarkable.

From these preliminary experiments it is evident that the injection of cancer cells which are physically disintegrated without probably being chemically altered has markedly affected the resistance towards living tumour cells. So far from conferring anything in the nature of immunity it has undoubtedly exalted the susceptibility.

Note.—I have evidently been working on similar lines to Dr. M Haaland, whose paper was published in THE LANCET of March 19th last. Owing to the fact that his tumour was "taking" normally in a high percentage of cases, the increase of susceptibility is not so evident as in the above experiments where the testing tumour is in a "dormant" phase.

Dundee.

THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON.—The lectures and demonstrations at this hospital for the forthcoming summer term will commence on Aprll 13th with a lecture by Dr. J. Kingston Fowler on the diagnosis, prognosis, and treatment of pneumonia. The lectures, which will be continued on the succeeding Wednesdays in April, May, and June, will be announced week by week in the Medical Diary of THE LANCET. On Thursday, May 26th, Dr. F. J. Wethered will give a demonstration at Frimley Sanatorium. The lectures and demonstrations are free to all qualified medical practitioners and to students fo medicine.

A RELIC OF THE JAMESON RAID:

EXTRACTION OF BULLET AND SEQUESTRUM FROM THE UPPER THIRD OF THE THIGH TEN YEARS AFTER THE INJURY.

BY HENRY CURTIS, B.S. LOND., F.R.C.S. ENG.,

SENIOR ASSISTANT SURGEON, METROPOLITAN HOSPITAL, LONDON, N.E.; ASSISTANT SURGEON, SEAMEN'S HOSPITAL SOCIETY; JOINT TEACHER OF OPERATIVE SURGERY AT THE LONDON SCHOOL OF CLINICAL MEDICINE.

THE following notes of the extraction of a soft-nosed Mauser rifle bullet, and a sequestrum, from a wound in the upper third of the thigh ten years after the injury during the Jameson Raid may be of interest.

The wound was inflicted on Jan. 2nd, 1896, and before entering the outer side of the right thigh the bullet was said to have struck a clasp knife hanging from the belt of the patient, a farmer, aged 30 years at the time he came under my care at Bulawayo on April 8th, 1906. Two medical men at Krügersdorp, who operated at the time, informed the patient that no bullet was recovered. The wound healed by March, 1896.

At the end of 1904 and the beginning of 1905 severe right-sided sciatica confined the patient to bed for 13 weeks, and during October and November, 1905, he was unable to get about owing to severe neuralgic pains in the right groin and all down the thigh. Indeed, ever since the wound "the leg had always troubled the patient, and after much exertion gave the sensation of being asleep." In 1906, at the end of February, the wound broke open for the first time and commenced discharging pus. On March 22nd, at Salisbury, Rhodesia, two medical men examined and explored the wound, which was situated on the antero-external aspect of the upper third of the thigh. They followed the sinus-like track for about six inches or more in a direction downwards and inwards, and not locating the bullet concluded that it might be in the lower fourth of the inner side of the thigh. The X ray installation at that time being unavailable they were under the greatest disadvantage, and for this reason the patient was sent to me at the Bulawayo Hospital, where at this time, by an unfortunate coincidence, our own apparatus happened to be almost useless.

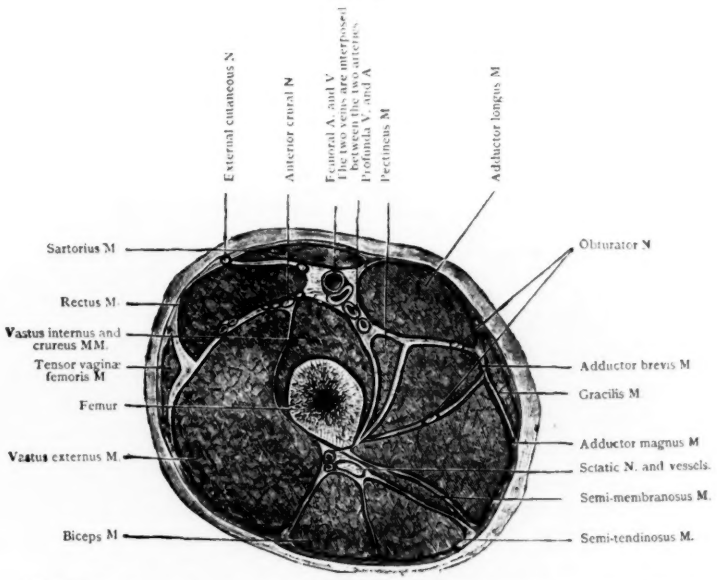
Coming under my care on April 8th, 1906, 17 days after the previous exploration, the right thigh was seen to be much wasted, doubtless from disuse. At the antero-external aspect in the upper third of the limb there was an elongated depression, on the floor of which was the opening of a discharging sinus. The sinus was directed at first across the thigh, apparently towards the postero-external aspect of the femur, and then passed downwards and inwards. No foreign body or actual bare bone could be detected. The attempt to obtain a skiagram was most unsatisfactory, the only result being a very faint and ill-defined blur, but as this was the only hint available, it was assumed to indicate the presence of the bullet—a very fortunate assumption as it proved. It appeared to be situated rather to the inner side of the femur, just below the level of the sinus seen on the outer side of the thigh. This, of course, was contrary to what had been suspected, and it was quite impossible to guess whether it was on the inner or outer side of the linea aspera, a point of practical importance, when the attachment of the muscles is remembered, in determining whether the incision should be from the anterior or posterior aspect of the thigh. Fig. 1, from Sir William MacCormac's "Surgical Operations," will serve to emphasise the importance of this point by illustrating the relations of the parts, and will facilitate the following description.

Operation.—This was undertaken on April 19th, 1906. Deciding to examine the linea aspera at its inner edge, where it gave insertion to the tendon of the adductor brevis, the anterior incision was selected; and failing to find the bullet here, or from this position to get evidence of its presence on the postero-external aspect of the bone, it was intended to make a fresh incision on the back of the thigh between the vastus externus and the biceps.

With the thigh flexed and a little everted, as for ligature of the superficial femoral artery, a 3½ inch longitudinal incision was made along the anterior aspect of the thigh in its upper third, so that its centre corresponded with the apex of Scarpa's triangle, formed by the crossing of

the inner border of the sartorius over the outer border of the adductor longus muscle, about four inches, that is to say, below Poupart's ligament. Having exposed the pectineus and adductor longus muscles forming the inner portion of the floor of the triangle, and leaving the femoral vessels undisturbed to the outer side, the outer border of the adductor longus was defined and well retracted, thus bringing into view, between it and the pectineus, the adductor brevis. Following this muscle towards its insertion and well retracting, exploration soon revealed, deep down, at the back of indicated the course of the bullet, which must have struck the femur from the outer side near its anterior surface and then slipped, or wandered subsequently, into the inner aspect of the femur, in close contact with the inner lip of the linea aspera. The patient must be congratulated upon the fact that the femoral vessels and their branches were so skilfully eluded by the bullet during its course and subsequently. Very offensive pus escaped from the wound next day, but the discharge soon ceased to be so, and greatly diminished in quantity. On June 1st, after a fortnight of normal

FIG. 1.



Transverse section of the right thigh at the apex of Scarpa's triangle. (From MacCormac's "Surgical Operations," by kind permission of the publishers, Messrs. Smith, Elder, and Co.)

FIG. 2.

The Mauser bullet. (Exact size.

FIG. 3.

The sequestrum. (Exact size.)

the inner aspect of the femur, the object of our search, the Mauser bullet, which, mushroomed at one end, was then extracted. It presented the appearance shown in the accompanying reproduction of a photograph (Fig. 2), in which it is shown of the exact size. For this and the next picture I have to thank the hospital secretary, Mr. H. W. Garbutt, the patient naturally desiring to keep the bullet itself as a souvenir. The anterior wound and the sinus externally were drained.

Five days after the operation the pus became so offensive as to suggest the presence of necrosed bone, the temperature having risen to 102° F., as it had previously done four days before the operation. The temperature then steadily fell to normal, but 17 days after the operation, with a temperature of 100·6°, a great deal of pus escaped from the dressings, and both drainage-tubes were re-inserted. Six days later, on May 12th, a large sequestrum was removed through the external wound, derived from the anterior surface of the femur. This is shown in Fig. 3. The position of the sequestrum temperature, with still occasional sharp attacks of sciatica, the patient returned home with the wounds nearly healed.

The following give the approximate measurements:—Bullet: length, 2·5 cm. (1 inch); diameter, shortest, 8 mm. ($\frac{8}{10}$ inch); longest, (where fungated) 1·7 cm. ($\frac{13}{16}$ inch). Sequestrum: length, 2·2 cm. ($\frac{9}{10}$ inch).

THE GEOLOGISTS' ASSOCIATION.—The Geologists Association of London held their Easter excursion this year in North Devon with Barnstaple as the headquarters. The visitors were about 50, and included Professor W. W. Watts, F.R.S., President of the Geological Society; Dr. J. Evans, F.R.S., of the Imperial Institute; Dr. A. Smith-Woodward, F.R.S., British Museum. A very successful meeting was held, the places visited including Bideford, which has a museum with several interesting geological specimens, Lynton and the Valley of Rocks Abbotsham Cliffs, Instow, &c.

NOTES ON THE USE OF ADRENALIN CHLORIDE IN THE TREATMENT OF PLAGUE.

BY E. N. THORNTON, M.R.C.S. ENG., &C.,
ADDITIONAL MEDICAL OFFICER OF HEALTH FOR CAPE COLONY; LATE DISTRICT MEDICAL OFFICER, GUJRAT, PUNJAB.

IN the course of an outbreak of plague at East London in March, 1905, Dr. Barcroft Anderson suggested to me that adrenalin chloride might be given a trial at the local plague hospital. At this time we were not aware that the drug had been recommended for the treatment of plague in 1904 in India by Rai Bahadur Kailaschander, I.M.S., who, in an Indian medical journal, stated that while he considered it to be a sovereign remedy for bubonic plague, it was useless in other forms of the disease.

Dr. Anderson made the suggestion as the result of a number of post-mortem examinations, at which he had been struck by the extreme congestion of the organs of the bodies examined, which is so typical of plague. He thought that if a vaso-constricting drug were exhibited this general congestion might be prevented with much advantage to the patient, and adrenalin chloride naturally suggested itself to him, as, besides constricting the peripheral blood-vessels, it is a powerful cardiac stimulant.

The pathological changes found in the suprarenal glands themselves in fatal cases of plague were remembered, and it was thought that these changes might perhaps alter for the time being the normal action of the glands. The changes in the appearances of the suprarenals are not, so far as I am aware, described in any text-book or article on plague, but they were first pointed out by Dr. A. J. Gregory, the medical officer of health of Cape Colony, and have been recognised for a long time by plague medical officers in South Africa, and, indeed, have come to be regarded as one of the most striking appearances to be looked for at post-mortem examinations. In plague these glands are invariably found enlarged and extremely congested, if not actually hæmorrhagic. It is well known that removal of the suprarenals in monkeys is always fatal, death usually taking place within a period of 24 hours after the operation. Almost immediately after the operation the blood pressure falls, the animal becomes lazy, feeble, and lethargic, and dies from heart failure. Now, in plague it is also essentially the circulatory system that is almost at once profoundly affected by the disease, and it was suggested that this might be due in some measure to pathological changes occurring in the suprarenals.

On the administration of the drug in the first few cases in which it was tried the results were sufficiently satisfactory to ensure that all future cases admitted during the outbreak should be treated in the same manner. The East London outbreak, however, came to an end before a definite opinion, based on statistical data of any value, could be expressed as to the treatment, but in 1907, during an outbreak at King William's Town, I was afforded an opportunity of treating with it a further series of cases, bringing the total number of consecutive cases treated by this method up to 50. Dr. Anderson and I have since waited in vain for an opportunity to treat further cases, but the disease is now evidently eradicated from the colony, and therefore it would appear desirable to publish the results, in the hope that the method of treatment may be afforded extensive trial elsewhere, especially as all other methods, including the inoculation of patients with sera, have been discouraging.

Every case coming under Dr. Anderson's or my own treatment since March, 1905, has been placed on adrenalin, no matter what the condition was on admission, and, indeed, a large percentage of the cases were in a desperate condition at the time of admission, some being actually moribund, or practically so, and consequently hopeless cases from the first.

For adults 30 minim doses of Messrs. Parke, Davis, and Co.'s solution of adrenalin chloride of a strength of 1 in 1000 were at first usually given by the mouth, with 10 minims of tinctura strophanthi four-hourly for the first three days and three times a day thereafter for approximately another 14 days. Later, especially if the patient was extremely ill on admission, it was usual for the adrenalin to be given hypodermically or intravenously, in somewhat smaller doses until the patient was out of danger, when it was given, as in the earlier cases, by the mouth. The mixture for oral administration was made up as required, for it does not keep. In the worst bubonic cases it was usual to commence the treatment by injecting 20 minims of the adrenalin chloride solution in the neighbourhood of the buboes, especially where the buboes were unusually painful or where much extravasation was occurring into the surrounding tissues. The axillary cases particularly (where there are usually extensive serous effusion and hæmorrhagic extravasation involving the axilla, arms, and ribs) appeared to benefit from injections into the neighbourhood of the bubo, and in these cases much of the usual extravasation was prevented.

TABLE I.

Case.	Sex and age.	Race.*	Date of onset.	Date of admission to hospital.	Date of		Form of disease.†	Severity of attack.
					Discharge.	Death.		
1	M., 27	E.	19/3/05	23/3/05	20/5/05	—	B.	Moderately severe.
2	M., 18	E.	24/3/05	26/3/05	24/6/05	—	,,	Very severe.
3	M., 51	E.	23/3/05	27/3/05	1/5/05	—	,,	Mild.
4	M., 10	E.	28/3/05	30/3/05	11/5/05	—	,,	Fairly mild.
5	M., 20	E.	29/3/05	31/3/05	11/5/05	—	,,	Severe.
6	M., 11	C.	27/3/05	1/4/05	10/5/05	—	,,	Very severe.
7	M., 30	E.	7/4/05	10/4/05	14/5/05	—	,,	Severe.
8	F., 32	N.	9/4/05	12/4/05	18/5/05	—	,,	Moderately severe.
9	M., 54	C.	13/4/05	14/4/05	—	17/4/05	,,	Very severe.
10	M., 16	C.	14/4/05	15/4/05	24/5/05	—	,,	Mild.
11	M., 12	N.	17/4/05	18/4/05	—	22/4/05	,,	Very severe.
12	M., 40	N.	17/4/05	21/4/05	—	25/4/05	,,	,,
13	M., 20	N.	14/4/05	20/4/05	2/6/05	—	P.	Severe
14	M., 55	N.	20/4/05	20/4/05	—	22/4/05	,,	Very severe.
15	M., 20	N.	19/4/05	21/4/05	24/5/05	—	B.	Mild.
16	M., 65	N.	24/4/05	25/4/05	—	27/4/05	,,	Very severe.
17	M., 35	E.	26/4/05	27/4/05	14/6/05	—	,,	Fairly mild.
18	M., 35	E.	27/4/05	29/4/05	14/6/05	—	,,	Fairly severe.
19	F., 27	E.	27/4/05	29/4/05	14/6/05	—	,,	Severe.
20	M., 45	N.	28/4/05	7/5/05	17/6/05	—	,,	Fairly mild.
21	F., 62	N.	28/4/05	1/5/05	—	24/5/05	,,	Severe.
22	F., 13	N.	3/5/05	7/5/05	9/6/05	—	,,	Fairly severe.
23	M., 8	N.	5/5/05	7/5/05	—	15/6/05	,,	Mild.
24	M., 24	N.	29/4/05	6/5/05	3/6/05	—	,,	Fairly severe.
25	M., 2	N.	7/5/05	7/5/05	—	10/5/05	,,	Very severe.
26	M., 19	N.	10/5/05	12/5/05	—	15/5/05	,,	,,
27	F., 35	E.	20/5/05	23/5/05	1/7/05	—	,,	Severe.
28	M., 31	N.	22/5/05	23/5/05	30/6/05	—	,,	Mild.
29	M., 21	N.	19/5/05	19/5/05	24/6/05	—	,,	Fairly mild.
30	M., 22	E.	21/5/05	25/5/05	21/6/05	—	,,	Mild.
31	M., 35	N.	2/6/05	3/6/05	—	4/6/05	,,	Very severe.
32	F., 43	E.	4/6/05	7/6/05	13/8/05	—	,,	Fairly severe.
33	M., 20	N.	3/6/05	6/6/05	8/7/05	—	,,	Severe.
34	M., 29	N.	15/6/05	15/6/05	22/7/05	—	,,	Mild.
35	F., 11	N.	17/6/05	19/6/05	—	21/6/05	,,	Very severe.
36	M., 11	E.	17/6/05	20/6/05	—	23/6/05	,,	Fairly mild.
37	M., 24	N.	4/7/05	7/7/05	—	9/7/05	P.	Very severe.
38	F., 33	E.	12/7/05	13/7/05	—	16/7/05	,,	,,
39	F., 11	E.	2/5/07	6/5/07	17/6/07	—	B.	Mild.
40	M., 22	N.	6/5/07	9/5/07	28/5/07	—	,,	Fairly mild.
41	F., 15	E.	23/5/07	24/5/07	9/7/07	—	,,	Very severe.
42	M., 35	N.	31/5/07	1/6/07	20/7/07	—	,,	Fairly severe
43	M., 20	N.	13/6/07	13/6/07	18/7/07	—	,,	Very severe.
44	F., 5	E.	16/6/07	20/6/07	30/7/07	—	,,	Fairly severe
45	F., 22	N.	29/6/07	1/7/07	8/8/07	—	,,	,,
46	M., 54	E.	5/7/07	6/7/07	20/8/07	—	,,	Mild.
47	M., 60	N.	23/8/07	29/8/07	16/9/07	—	P.	Severe.
48	F., 40	N.	24/8/07	30/8/07	—	2/9/07	,,	Very severe.
49	F., 5	N.	27/8/07	29/8/07	8/10/07	—	B.	,,
50	F., 50	N.	28/8/07	29/8/07	8/10/07	—	,,	Mild.

* E. = European; C., Coloured; N., Native. † B. = Bubonic; P., Pneumonic.

Remarks.—Case 1: In a collapsed condition on admission but quickly rallied.—*Case 2:* On admission patient not expected to recover but

gradually rallied.—*Case 3:* Uneventful recovery.—*Case 4:* Considerable extravasation round left femoral bubo; uneventful recovery.—*Case 5:* On admission patient delirious; slow recovery.—*Case 6:* An unusually severe case but quickly responded to treatment.—*Case 7:* Patient very delirious on admission; quick recovery.—*Case 8:* Very ill on admission; quick recovery.—*Case 9:* Patient admitted in a delirious condition, quickly became comatose, and died on fourth day after admission.—*Case 10:* Uneventful recovery.—*Case 11:* Practically moribund on admission; rallied somewhat under treatment, but quickly again passed into comatose state, and died on the fifth day after admission.—*Case 12:* Moribund on admission; never rallied sufficiently to have a chance of recovery.—*Case 13:* Patient comatose on admission. Quickly recovered under treatment.—*Case 14:* Practically moribund on admission; never rallied.—*Case 15:* Uneventful recovery.—*Case 16:* Patient acutely ill on admission. Rapidly passed into septicæmic state and died on third day after admission.—*Case 17:* Uneventful recovery but convalescence somewhat protracted.—*Case 18:* Acutely ill on admission, but reacted quickly to treatment.—*Case 19:* Desperately ill on admission but quickly rallied.—*Case 20:* Uneventful recovery.—*Case 21:* Patient very ill on admission but quickly recovered from attack of plague but died on the twenty-seventh day after onset from valvular disease of the heart.—*Case 22:* Uneventful recovery.—*Case 23:* Recovered from mild attack of plague, but developed tubercular meningitis and died on the forty-second day after date of onset of attack of plague.—*Case 24:* Uneventful recovery.—*Case 25:* Patient admitted acutely ill with double cervical bubo; never rallied.—*Case 26:* Practically moribund on admission.—*Cases 27 and 28:* Uneventful recovery.—*Case 29:* Rapidly improved under treatment.—*Case 30:* Uneventful recovery.—*Case 31:* Moribund on admission.—*Case 32:* Acutely ill on admission; protracted convalescence.—*Case 33:* On admission patient in collapsed condition. Rapid improvement and quick recovery.—*Case 34:* Uneventful recovery.—*Case 35:* Practically moribund on admission.—*Case 36:* On admission patient had obscure intestinal symptoms, as well as an obvious attack of plague. Patient died from acute intestinal intussusception.—*Case 37:* Practically moribund on admission.—*Case 38:* Matron of the plague hospital; contracted disease from nursing Case 37. Disease was fulminating in type and patient rapidly became comatose and died.—*Case 39:* Uneventful recovery.—*Case 40:* Rapid recovery.—*Case 41:* Acutely ill on admission; rallied quickly under treatment.—*Case 42:* Responded quickly to treatment; rapid recovery.—*Case 43:* Desperately ill on admission; rapid recovery.—*Case 44:* Acutely ill on admission; uneventful recovery.—*Case 45:* Acutely ill on admission; rapid recovery.—*Case 46:* Uneventful recovery.—*Case 47:* Acutely ill on admission; rapid recovery.—*Case 48:* Moribund on admission.—*Case 49:* Patient desperately ill on admission but quickly improved under treatment; uneventful recovery.—*Case 50:* Uneventful recovery.

As soon as a patient had the drug administered the blood pressure was raised and the heart stimulated, and symptoms of threatening heart failure usually immediately disappeared. To some extent, also, the lethargy and weakness of the patients diminished under the treatment, but the drug did not appear to have any effect in quieting delirium or decreasing sleeplessness. When the latter symptoms were prominent sulphonal was usually administered in addition.

From Table I. it will be seen that out of the 50 cases there were 15 deaths, but one of the latter, Case 23, had recovered from his attack of plague, but had subsequently, before discharge from the hospital, developed tubercular meningitis and died on the forty-second day after the date of onset of his attack of plague. Another, Case 21, also had recovered from a mild attack of plague, but died in the plague hospital on the twenty-seventh day after the onset of this disease from valvular disease of the heart, the latter condition not appearing to be appreciably affected in any way by his attack of plague. Animals inoculated with material obtained from the buboes of Cases 21 and 23 while ill from plague died from plague, but those inoculated from these cases after death survived. Another patient—namely, Case 36—while suffering from a mild attack of bubonic plague, died on the seventh day of the disease from intussusception of the bowel. The latter case may, however, I think, be recorded as a death from plague, as the intussusception may have been caused by this disease, though from the patient's symptoms it would appear possible that he had had it prior to the date of sickening with plague.

Accepting 13 as the correct number of deaths from plague in this series, the death-rate from plague was 26 per cent. only, notwithstanding the fact that 3 of the cases who died were moribund, and 5 were practically moribund on admission. The summary in Table II. shows the race of the patients, the form of the disease, and the deaths.

TABLE II.

Race.	Bubonic.		Pneumonic.		All forms.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
European	17	1*	1	1	18	2
Coloured...	3	1	—	—	3	1
Native	24	7	5	3	29	10
All races	44	9	6	4	50	13

* Child with intussusception of the bowel.

The higher mortality amongst the native patients was due to the fact that these included the eight patients above mentioned who were admitted in a dying or almost dying state.

The results in this series of cases compare favourably with those obtained in all previous cases of plague (excluding cases of septicæmic plague which, of course, were all fatal) treated in the colony by other means, as the following summary of such cases indicates:—

TABLE III.

Race.	Bubonic.		Pneumonic.		Both forms.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
European	259	55	15	12	274	67
Coloured	320	122	26	19	346	141
Native	226	85	43	27	269	112
Asiatic	42	26	5	4	47	30
All races	847	288	89	62	936	350

From this it will be seen that the hospital mortality from plague (excluding septicæmic cases) in those cases not treated with adrenalin has been 37·4 per cent., or excluding Asiatics 35·9 per cent., as compared with a mortality of 26 per cent. only amongst those treated with adrenalin. This lower mortality does not appear to have been due to the fact that the patients treated with adrenalin had the disease in an unusually mild form, for, if anything, they appeared generally to have been somewhat worse than are cases that usually come under treatment, especially those towards the middle and end of the series.

In all the fatal cases in which adrenalin chloride had been used the alterations in the post-mortem appearances were extremely marked, although they were only what could be expected after the use of a drug possessing in such a degree vaso-constricting properties. In nearly all cases in which the drug had been freely used there was a marked diminution in the usual congestion of the organs, no hæmorrhages or petechiæ, less effusions into the pleura and pericardium, less enlargement of the spleen and liver, and very little enlargement or alteration in the appearances of the suprarenal glands. In smears made for microscopical examination from such fatal cases as had been treated to any extent by the drug plague bacilli were found to be present in far fewer numbers than is ordinarily the case. Indeed, plague bacilli could not be found microscopically at all in smears made during the post-mortem examinations from certain of these cases, and more especially the pneumonic cases, although inoculated animals died from plague. Further observations are, however, required before this can be regarded as of constant occurrence. Assuming, however, that it is, a satisfactory explanation for it is not easy to find.

I am indebted to Dr. Gregory, the medical officer of health for the colony, for permitting me to publish these notes and affording me access to the official documents, and also to Dr. Anderson, who had a large proportion of the patients under his personal care.

Cape Town.

LONDON FIRES IN 1909.—Lieutenant Sladen, R.N., the Chief Officer of the London Fire Brigade, in his report for the year 1909 states that 103 persons, of whom 52 were children under 12 years of age, lost their lives in consequence of London fires. In 1908, 93 deaths were recorded. The total number of fires attended by the brigade during the period under notice was 3197. It is pointed out that a large number of fires occurs from easily preventable causes. In cases of fire delay is sometimes caused by persons using telephones asking to be connected with the nearest local station, and Lieutenant Sladen informs the public that the best method of calling the London Fire Brigade by Exchange telephone is, after getting communication with an exchange, to ask for "Fire Brigade," and on getting connected therewith to give the address of the fire.

BÁRÁNY'S NEW TUNING-FORK TESTS; WITH A FEW REMARKS.

BY E. CRESSWELL BABER, M.B. LOND.

LAST year Dr. R. Bárány showed at the Austrian Otological Society[1] a series of ingenious tuning-fork tests of his own devising. I had an opportunity of seeing some of these tests, not only at the International Medical Congress at Budapest, but also, through the kindness of Dr. Bárány, at the Clinic in Vienna. It is not possible in this article to describe them fully, but the following is a short account of them. To simplify the subject I have numbered them in the order in which Bárány has described them: (I.) Comparison of cartilaginous and mastoid conduction; (II.) new method of testing bone conduction; (III.) comparison between mastoid and tube conduction (an improvement and simplification of Rinne's test); (IV.) comparison between cartilaginous and tube conduction; and (V.) an improved method of performing Gellé's experiment.

I. *Comparison of cartilaginous and mastoid conduction.*—In the normal ear a tuning fork struck hard and placed lightly, without pressure, on the lower part of the mastoid, and afterwards held firmly up against the posterior surface of the auricle, is heard decidedly louder on the latter. In this case the result of the experiment is said to be positive (+). Closure of the meatus while the sounding fork is on the auricle increases the sound; the same occurs when the fork is held on the mastoid (Bing). The result of the experiment, therefore, remains the same. In middle-ear disease this experiment gives a negative (−) result. In very slight cases with middle and high tones there is often a positive result or the result is neither positive nor negative (+ −), but for the deeper tones (C) it is negative. Closure of the meatus makes it positive for all tones in slight cases. When there exists a moderate amount of middle-ear obstruction the experiment gives a − result to all tones, which becomes + on closure of the meatus. In marked middle-ear disease the result is − for all tones whether the meatus be open or closed. The reason for this is that in obstruction of the conducting apparatus the sound is almost always strengthened by closure of the canal when the fork is applied to the cartilage. When, on the contrary, the fork is applied to the mastoid, closure of the ear strengthens the sound only in slight affections of the middle-ear. In marked middle-ear disease the sound either remains the same or becomes less.

Another method of applying this test is as follows by means of an auscultation tube (otoscope). An auscultation tube is fitted into the ear of the patient and that of the surgeon, and the sounding fork is applied to the patient's auricle and mastoid. The sounds heard by the patient correspond exactly to those heard by the surgeon—e.g., if the fork is applied so that the patient hears it louder on the auricle, then the surgeon hears the same, and *vice versâ*. If this relationship is present with all forks then the least middle-ear obstruction may be confidently excluded. In affections of the middle ear the fork is heard by the patient louder on the mastoid, whilst the surgeon hears it louder on the auricle: i.e., the test is −. The greater the middle-ear affection, the more marked is this condition. In very slight middle-ear disease the patient hears the fork louder on the mastoid, whilst the surgeon hears it equally on the cartilage and mastoid. Precautions necessary in performing these experiments are: (1) That the tuning fork be applied to the lower part of the mastoid, as there is a place over the mastoid antrum where the experiment becomes − even in a normal ear; (2) that in applying the fork to the cartilage the latter be not so far bent forward as to close, or partially close, the ear; (3) that any contact of the fork (or hand holding it) with the auricle be avoided when the fork is applied to the mastoid; (4) that feeling the vibration of the fork on the cartilage be not confounded with hearing; and (5) it is of importance that the auscultation tube should fit air-tight in the ears, and that contact with the tube of the arm holding the tuning fork be carefully avoided. Bárány considers this a more accurate test than Rinne's, because in a large number of cases in which Rinne is + it gives a − reaction. It is said to be superior to Rinne in out-patient practice, as it deals only with gross qualitative differences, and is to a great extent independent of external noises.

II. *A new method of testing bone conduction.*—The auscultation tube being fixed in the ear of the patient and the surgeon, the tuning fork is placed on the mastoid of the patient. The exact point of application of the fork is of no consequence, though it is best applied far back to avoid the auricle; the amount of pressure applied is likewise immaterial. In a normal case the fork is heard equally long by the examiner and the examinee, but in some case the latter hears it longer. In disease of the middle ear a large number of cases hear it as long as, or longer than, the surgeon. In these cases Bárány thinks an affection of the nerve can be confidently excluded. In other cases, however, in which the usual tests show increased bone conduction, the new method gives a slightly diminished bone conduction. As Bing's experiments show, the closure of the meatus sometimes diminishes the sound in middle-ear affections. As soon, therefore, as the patient ceases to hear the fork Bárány removes the tube. In some cases the patient hears the fork again for a few seconds; as soon as this ceases the surgeon re-inserts the tube, but hears no sound. In these cases there is no disease of the internal ear. If, on the other hand, on re-insertion of the otoscope the fork is clearly heard, Bárány considers that a secondary affection of the internal ear may be safely diagnosed. In undoubted cases of disease of the internal ear it is always found that the patient hears the tuning fork for a considerably shorter time than the surgeon. Completes unilateral deafness cannot, of course, be diagnosed by thie method, as the good ear cannot be excluded, but in all these cases the patient reports diminished bone conduction in th; affected ear. The advantages claimed for this method are (1) That it is of no consequence at what point the tuning fork is placed; (2) that the same can be said of the pressure with which it is applied; (3) that the patient and surgeon are equally affected by external noises, and therefore independent of them (this does not seem to me strictly correct, because the unclosed ear of the surgeon is presumably normal, whilst that of the patient is often more or less deaf); and (4) that by this method it is probably possible to make a diagnosis of disease of the internal ear in many cases in which the old methods of testing showed exaggerated bone conduction.

III. *Comparison between mastoid and tube conduction (an improvement and simplification of Rinne's test).*—If an auscultation tube be fixed air-tight in the meatus of the surgeon and that of the patient to be examined, and the handle of a sounding tuning fork be placed alternately on the otoscope and on the patient's mastoid, in a normal ear or a purely labyrinthine affection the sounds heard by the surgeon and the patient respectively correspond exactly in intensity—i.e., if the observer hears the fork louder when it is placed on the mastoid than when it is placed on the tube, the patient hears the same and *vice versâ*. If the tones are so regulated that they are heard by the surgeon equally on the tube and the mastoid, they are heard similarly by the patient. (In order to diminish the sound on the tube the finger or the back of the left hand is interposed between the fork and the tube.) In affections of the sound-conducting media the patient hears better on the mastoid, while the observer hears better on the tube. If the middle-ear affection be very slight the predominance of sound to the patient on the mastoid only occurs when the two sounds are equal to the observer. (In such cases Rinne is always +, and on this account this experiment is considered more accurate than Rinne's test. In these cases interference with sound conduction was due to cicatrices, chalky deposits, or granulations on the membrane.) The greater the interference with the sound-conducting apparatus, the greater is the difference between the sensations of the examiner and examinee.

In maximal interference with sound conduction it is impossible with the strongest stroke of a fork pressed hard on the tube to make the patient hear it louder than when it is lightly placed on the mastoid

IV. *Comparison between cartilaginous and tube conduction.*—In the normal ear the sensations of examiner and examinee correspond exactly. It is not very rare to find in disease of the conducting apparatus that the patient hears better on the cartilage, whilst the observer hears better on the tube. The cases in which this has been well marked have in Bárány's

[1] Monatsschrift für Ohrenheilkunde, Jahrgang xliii., Heft 5, p. 336; Ibid., Jahrgang xliii., Heft 6, p. 456; Ibid., Jahrgang xliii., Heft 8, p. 634.

experience hitherto been exclusively those of large perforations in the anterior inferior segment of the membrana tympani.

Experiments I. and III. have in a large number of cases given similar results; only in certain cases in which the cartilaginous conduction exceeds the tube conduction do differences occur.

V. *An improved method of performing Gellé's experiment.*—The two horizontal branches of a T-shaped rubber tube fitted with the usual nozzles are inserted air-tight into the meatus of the patient and the observer, and condensation and rarefaction of the air is effected through the vertical branch, either by the mouth or by a bag. Bárány recommends the former, as by this means the pressure can be very accurately regulated and both hands are left free. Condensation and rarefaction of the air give, according to Bárány, *exactly similar results*. Bárány's method of ascertaining that the otoscope is fixed airtight in the ears is as follows. After the nozzles are placed in position apply aspiration or compression to the vertical part of the T-shaped tube, when any entrance or escape of air is easily recognised by the observer's ear. *This method is employed in all the above experiments.* The tube used by Bárány has a short metal T in the centre, and exclusive of this measures in length about 22 centimetres in the patient's branch, 66 centimetres in the surgeon's, and 88 centimetres in the vertical branch.[2] In the first four experiments the end of the vertical branch of the tube is closed with the finger during auscultation. Bárány, so far as I gathered, uses in his experiments mostly a Politzer tuning fork, between d and e, 150 v.s., and in order to be able to institute a comparison I have used the same fork. It is advisable, in order to gain definite results, to keep to one fork at first so as to simplify the experiments as much as possible.

Remarks.—The above gives a short and possibly imperfect account of Bárány's tests, and there are a few other details which must be read in the original. It is obvious that it is impossible here to give an opinion of the practical value of the first four tests. A very large experience of several observers, combined if possible with pathological data, will be necessary to ascertain whether they are in any way superior to the tests already in use (Rinne, Schwabach). The advantages claimed for the tests have been pointed out; a few of what appear to me to be disadvantages may be noted.

In the first place, in Experiments I. and IV. we are using cartilaginous conduction, a method of conduction with the nature of which we are very imperfectly acquainted. In fact, Bárány uses the term "cartilaginous conduction" only as a convenient expression and without attempting to explain how the sound is conducted to the labyrinth when a fork is applied to the auricle. Again, the following experiment, which I have frequently performed, may affect the results of several of the above experiments. The auscultation tube being fixed air-tight in the ears of the surgeon and patient, and the open end of the third branch closed with the finger, the sounding fork is placed first on the mastoid of the patient, on the same side as the tube, and afterwards on the observer's mastoid as nearly as possible in a corresponding situation and with the same amount of pressure, and the two sounds, as heard by the surgeon, are compared. In the great majority of cases the sound is heard louder by the observer when the fork is *on his own mastoid*, and this is the case whether the patient's ear be normal or affected by middle- or internal-ear deafness. The accuracy of this observation is borne out by the fact that during the same experiment the patient, when he has a normal ear, will often tell you that he hears the fork louder on his own mastoid than when it is placed on that of the surgeon. My experiment (if confirmed by other observers) affects Bárány's method of testing the bone conduction (Bárány's Experiment II.); indeed, Bárány himself says that in some normal cases the fork is heard longer by the examinee. (See above under Experiment II.) It also has a bearing on Bárány's Experiments I. and III., making them more negative than they appear to the observer, unless there is a similar difference in the sound to the observer when the fork is placed on the patient's and on his own *auricle*, and when it is placed on the *tube* close to the patient's ear and to his own respectively. This is a point upon which I have not been able to satisfy myself.

[2] To be obtained of H. Reiner, Vienna, or Mayer and Meltzer, London.

Bárány's simplification of Gellé's test (Experiment V.) is, I have found, very practical. It enables pressure and suction to be accurately applied. I am able to confirm Bárány's observation that rarefaction and condensation of air in the meatus produce similar results in the great majority of cases.[3]

These experiments are highly interesting, and those connected with cartilaginous conduction will probably, as Bárány says, throw light on the physiology of the ear. They are well worthy of careful investigation, but they require very extensive application before their practical value can be accurately appraised.

In these remarks I have not gone into the question of the lateralisation of tuning-fork tests, which Bárány has treated in a more recent communication, nor into the use of other tests for distinguishing middle and internal ear deafness, such as Weber's test and examination with the scale of notes in cases of unilateral deafness.

Brook-street, W.

ARTHRITIS DEFORMANS.[1]

BY R. LLEWELLYN JONES, M.B. LOND.

WHILE deeply sensible of the honour, yet I must confess that it was with many misgivings that I acquiesced in your President's suggestion and consented to open a discussion before this society upon so obscure and intricate a subject as arthritis deformans. However, having had the temerity to essay the task I found myself forthwith confronted with the by no means trivial difficulty of deciding as to which aspect of this complex subject would most readily and most profitably lend itself to discussion. Upon reflection it occurred to me that I could not do better than select as the theme of my remarks the classification and differential diagnosis of the various joint affections grouped generally under the term "arthritis deformans." Doubtless, all of you who are familiar with the extensive literature will admit that much remains to be done before we shall be in a position to effect such a differentiation as shall lie beyond the reach of cavil. Our tardy progress towards this much-to-be-desired achievement may legitimately be referred in part to the bewildering state of our nomenclature.

This question of the terminology of chronic joint diseases is indeed one that clamours for speedy and careful consideration, if only with the object of ensuring a great measure of definitude in regard to the application of the various nosological terms. As matters stand, so numerous and so varied are the designations employed, and these withal are so vaguely defined, that not infrequently one finds the same term applied to denote wholly diverse joint affections, and *vice versâ*, identical arthritic conditions labelled by different appellations. Such indiscriminate application on our part of the various terms in use inevitably begets its own Nemesis in the shape of those mutual misunderstandings which so grievously hamper intelligent discussion, and for the same reason render perusal of the literature so laborious and but too often futile. Being, therefore, wishful, as far as possible, to obviate any confusion on this question of nomenclature, I would state that I use the term arthritis deformans in a generic sense, as covering all those various arthritic conditions to the discussion of which we are this evening committed.

Latterly the opinion has been steadily gaining ground that not one but several diseases have been included under one or other of the various terms used to designate collectively this class of joint disease. This view is, however, by no means as novel as certain writers on the subject are apparently inclined to consider, for they would appear to have overlooked the fact that even some years prior to the appearance of Charcot's classical monograph a German physician, von Volkmann, had clearly differentiated the anatomical lesions of rheumatoid arthritis and osteo-arthritis. Moreover, this contention of von Volkmann cannot be dismissed as mere

[3] I may mention that as long ago as 1881 I pointed out that the effect of condensation of air in the canal on the hearing of a tuning fork placed on the median line of the head was to diminish the sound in a normal ear. "Note on the Tuning Fork in the Diagnosis of Disease of the Ear," THE LANCET, April 9th, 1881, p. 577.

[1] A paper read before the Balneological and Climatological Section of the Royal Society of Medicine on March 9th, 1910.

speculative inference, for, as his writings demonstrate, he based his contention as to their fundamental distinctions upon the bed-rock of ascertained pathology as revealed to him in his anatomical researches. He was the first to establish the fact that in rheumatoid arthritis the initial changes began in the synovial membrane, the cartilages being affected secondarily. In addition, he noted the primary thickening of the periarticular and synovial tissues and the subsequent atrophy of the same, likewise the occurrence of fibrous and bony ankylosis. Furthermore, in his work he contrasted the features of this group with those of osteo-arthritis, of which he gave a classical description. It will be seen, therefore, from the foregoing details that the modern view as to the distinctness of rheumatoid arthritis and osteo-arthritis is, after all, but a recrudescence of that originally brought forward by Volkmann. With the advent, however, of Charcot's monograph on the subject the remarkable researches of Volkmann underwent an almost total eclipse. The great French physician, as we know, though he tacitly acknowledged the clinical distinctions of the two main varieties of arthritis deformans, nevertheless claimed that pathologically they were but different expressions or grades of the same underlying morbid process. So commanding was the personality of Charcot that this illustrious physician's conception as to the essential pathological unity of all forms of arthritis deformans dominated not only the French but most other schools of thought. Fortunately, however, the German school still retained their power of independent observation, and in the fulness of time von Volkmann's pioneer researches as well as his deductions were amply confirmed and reinforced by a series of anatomical investigations by different workers, among whom may be mentioned Hueter, Sameran, Waldmann, Hoffa, and Wollenberg.

Time does not admit of my alluding in detail to the post-mortem studies of the foregoing workers, and I must content myself with stating that the results of these and other workers' anatomical observations have largely determined me in regard to the classification I am about to submit to you of the various types of arthritis deformans. Under this title at least three distinct varieties of joint disease may be distinguished: (1) rheumatoid arthritis or atrophic arthritis; (2) osteo-arthritis or hypertrophic arthritis; and (3) infective arthritis.

With regard to the first-named division, *rheumatoid arthritis*, it may be mentioned that the synonymous term of atrophic arthritis was first introduced by Charcot, who noted in regard to one of his clinical types of arthritis deformans that secondary atrophic changes developed during the later stages of its life-history. This atrophy, he tells us, involved not only the skin, subcutaneous and muscular tissues, but even the bones; hence his suggestion that the name atrophic arthritis should be adopted as embodying the salient pathological characteristic of this variety. Recently, for the same reasons, the use of the term has been revived by Goldthwait, who would, however, restrict its application to the more chronic forms of rheumatoid arthritis. My clinical experience, however, accords with that of most English observers in that there is also an acute form of the malady to which the term under discussion is also applicable. Lastly, in addition to the foregoing acute and chronic types, I would also place under the same heading of rheumatoid arthritis that group of cases known as Still's disease. I do this provisionally, inasmuch as I have not on Still's basis of differentiation found it possible to effect a satisfactory discrimination between examples of this variety and cases of rheumatoid arthritis occurring in children. Briefly stated, Still claimed that this disease could be clinically differentiated from rheumatoid arthritis by the absence of glandular and splenic enlargement in the latter, and by the presence in rheumatoid arthritis of bony thickening and lipping. It is not, however, obvious how a satisfactory differentiation can be achieved upon these lines. Thus, rheumatoid arthritis, at any rate in its early stages, is not accompanied by bony outgrowths either in children or adults. Neither can any cleavage be upheld on the ground that lymphatic and splenic enlargement are absent in rheumatoid arthritis. For my own experience accords with that of others in that enlargement, at any rate of the glands, is frequent, while examples of splenic swelling are accumulating.

To my mind, too much stress has been laid on splenic and lymphatic enlargement as a differentiating factor, and pending positive bacteriological findings, I am inclined to regard Still's disease as a form of rheumatoid arthritis, in which the prominence of glandular swellings is to be accounted for as a peculiarity incidental to the early age of its victims, and that their presence cannot be construed as adequate evidence of its being a specific joint affection.

Passing now to consider the morbid anatomy of the above rheumatoid type, we are, I think, justified by recent anatomical researches in drawing the following conclusions:—1. The morbid process begins in the synovial and periarticular tissues, which undergo thickening and proliferation, but the cartilage, at any rate in the earlier stages, remains intact. 2. The changes that ensue in the cartilaginous and bony structures are to be regarded as secondary, and are predominantly atrophic in character. 3. In some cases proliferative changes take place in the bone and cartilages, but these occasional new bony outgrowths are inconsiderable in size. 4. Lastly, in the terminal stages of the disease secondary atrophic changes ensue. Thus the cutaneous and capsular tissues undergo progressive shrinkage; the joint cavity becomes obliterated with fibrous or bony ankylosis. This atrophic process involves also the shafts of the bones, the cortex becoming attenuated and the cancellous tissue replaced by scanty thin trabeculæ.

Before proceeding to consider briefly its clinical aspect, one may allude to the one salient characteristic of the etiology of rheumatoid arthritis—i.e., the frequency with which the disease is associated with, or arises in sequence to, affections of avowedly infective or toxic character; hence the strongest presumption of the malady itself being also of like origin.

From the clinical standpoint rheumatoid arthritis may be defined as a progressive polyarthritis, which runs a more or less acute or chronic course, diversified by remissions and exacerbations. The disease occurs chiefly in persons under 40 years of age, and is far more common among women than men, but in children, boys, if anything, are more frequently attacked than girls. It begins in the small joints, spreading centripetally, with a tendency to symmetrical distribution. The more exposed joints become the seat of smooth spindle-shaped swellings, due rather to periarticular thickening than to effusion, but no nodular outgrowths can be detected at the level of articulation. Eventually the enlarged joints undergo contraction or shrinkage, all the articular structures, skin, bone, cartilage, participating in this secondary atrophic change. The temporo-maxillary and cervical articulations are almost invariably implicated. Coincidently, severe wasting of interossei and extensor groups of muscles ensues, with marked exaggeration of the deep tendon reflexes. Enlargement of the lymphatic glands is not infrequent, while pigmentation, localised sweatings, and vaso-motor derangements are often striking collateral features. Cardiac troubles are rare. The temperature, when raised, is of low grade when compared with other arthritic affections, especially so when we bear in mind the widespread involvement of joints. The pulse-rate is frequently quickened, and this feature, when accompanied by pyrexia of low grade and persistent swelling, especially of swollen joints, is very suggestive of rheumatoid arthritis.

Considered briefly, the foregoing constitute the cardinal pathological and clinical features of rheumatoid arthritis, and we now pass on to consider the second group—*osteo-arthritis or hypertrophic arthritis*. From an etiological standpoint it contrasts with rheumatoid arthritis in that infective conditions do not appear to be so intimately related to its genesis, while, on the other hand, the influence of trauma, so inconspicuous in rheumatoid arthritis, is very much in evidence in osteo-arthritis. Additional factors are to be found—senility, arterio-sclerosis; and in those cases which arise so frequently at or about the menopause it is possible that its onset at this period may be determined by some modification in the internal secretions either of the thyroid, ovary, or both. As to its morbid anatomy, in this variety of arthritis deformans the essential anatomical lesions are those produced in the cartilaginous and bony structures, which undergo enlargement or hypertrophy. Most authorities now agree with Virchow that the synovial tissues are only involved secondarily. Histologically the ground substance of the cartilage undergoes a process of segmentation, while its cellular elements proliferate. Ultimately the cartilages by attrition become thinned, and their central portions, where pressure is greatest, being at length completely worn away, the denuded ends of the bones appear, and these subsequently become sclerosed and their surfaces eburnated.

On the other hand, the peripheral portions of the cartilage, not being subject to such pressure, instead of being thinned, become thickened, the proliferating elements forming irregular crests or nodules, which, primarily cartilaginous, ultimately become ossified. The osteophytic outgrowths thus developed are the source of the deformity of the affected joint and are responsible also for the limitation of its mobility, but although complete locking may occur bony ankylosis does not ensue.

The secondary changes in the synovial membrane have been specially studied by Hoffa, who distinguished two stages in their production. The first is characterised by villous overgrowth, proliferation of fixed connective tissue cells, with extensive pigmentary deposit. In the second phase degenerative processes predominate, the synovial membrane undergoing mucous changes and ultimately complete transformation into structureless hyaline tissue, a metamorphosis said by Hoffa to be pathognomonic of the affection. The excessive deposit of pigment noted by Hoffa is of great interest and may possibly possess some etiological significance.

Bowlby, as we know, has shown that intra-articular hæmorrhage can initiate osteo-arthritic changes in the subject of hæmophilia. Now it is quite possible that in many instances of osteo-arthritis a long-forgotten trauma may have supplied the initial impulse to the morbid process. Godlee has recently adduced some striking instances in which a joint injured in early life has in later years become the seat of osteo-arthritis. Such injuries, it is conceivable, might readily determine the occurrence of a greater or less degree of intra-articular hæmorrhage, which by its presence might initiate what might be termed a reactive osteo-arthritis. It is easy to understand how once started the morbid process tends to perpetuate itself; thus during the natural exercise of a joint so affected the roughened cartilaginous surfaces and bony asperities must be a source of continual irritation to the synovial membrane, which in its turn responds by new formation of connective tissue and hypertrophy of its tufts. Again, these elongated synovial processes, either by becoming free in the cavity or from time to time becoming incarcerated between the joint surfaces, contribute to its irritability, and a vicious circle is thus established. This hypothesis as to the *modus operandi* of trauma may account for the presence of the abnormal degree of pigment noted by Hoffa.

It will be convenient here to institute a comparison between the anatomical features of rheumatoid arthritis as opposed to osteo-arthritis. 1. In rheumatoid arthritis the initial changes are found in the synovial tissues; the cartilaginous and bony structures are only affected secondarily. 2. In osteo-arthritis, on the other hand, this sequence of pathological events is reversed, the primary alteration taking place in the bones and cartilages, the synovial membrane being only implicated secondarily. 3. The character also of the changes in the bone and cartilage differs in the two affections. Those in rheumatoid arthritis are retrograde and passive, while those in osteo-arthritis are active and proliferative. In short, atrophy of bone and cartilage is the distinguishing feature in rheumatoid arthritis, hypertrophy in osteo-arthritis. 4. Bony ankylosis occurs not infrequently in rheumatoid arthritis, rarely, if ever, in osteo-arthritis.

From the clinical aspect osteo-arthritis is essentially a disease of the middle and later period in life, being rarely met with under the age of 40 years. It affects both sexes equally. The mode of onset is usually insidious, and the course of the disease slow but progressive. Constitutional disturbance is slight; the temperature is not raised, the pulse not quickened, while pigmentation and trophic disturbances are generally absent. Muscular atrophy is slight. The articular lesions are but rarely generalised, the tendency of the disease being to involve but a few joints, and these not symmetrical, while it shows a predilection for the larger articulations. In these respects it contrasts with rheumatoid arthritis, which is polyarticular, symmetrical in distribution, with a marked preference for the smaller joints. Moreover, when the smaller joints of the fingers are attacked by osteo-arthritis the terminal phalangeal joints are the site of election, as opposed to the marked affinity displayed by rheumatoid arthritis for the mid-phalangeal articulations.

Local characters of the articular swellings will obviously be more easily studied in exposed articulations, by preference the mid-phalangeal. Unlike rheumatoid arthritis, when it affects the same articulations, the skin over the joints presents no abnormal features, and at no period does it undergo atrophic change. Marked swelling when present is due to synovial effusion and not to periarticular thickening; hence we get no spindle-shaped appearance. On the contrary, the outline of the joints instead of being smooth and rounded is broken and irregular, owing to the presence of bony outgrowths studding the line of junction of the articular ends. Displacement of the bones, when it occurs, is usually lateral in direction, and due directly to the mechanical thrust of the bony excrescences and not to muscular spasm. In rheumatoid arthritis, on the other hand, hyper-extensions and luxation are the rule, and for which muscular retractions are directly responsible. This diversity between the articular lesions of these two diseases becomes more pronounced in the later periods of their life-history; thus in rheumatoid arthritis the one-time voluminous spindle joints undergo progressive shrinkage, skin, bone, and cartilage tending to wither away, until eventually the articular structures dwindle into what Goldthwait has aptly termed the small end joint of rheumatoid arthritis. On the contrary, in osteo-arthritis the more ancient the lesion, the more massive the bony outgrowths, the more marked the enlargement of the affected articulations.

In concluding this brief account of osteo-arthritis one cannot help commenting on the paucity of its collateral phenomena, as compared with rheumatoid arthritis. This to our mind constitutes the salient distinction between these two diseases. Osteo-arthritis is much more a disease of joints, and joints only, than rheumatoid arthritis, in which the arthritic changes form only one feature in a very varied clinical picture.

It now remains for us to consider the third division—i.e., *infective arthritis*, for it cannot be doubted that examples of this nature intrude themselves into any category of arthritis deformans, however scrupulously compiled. These cases of infective arthritis have to be considered chiefly in regard to rheumatoid arthritis, more especially its acute forms, inasmuch as it is in connexion with them that confusion is most likely to occur. Before proceeding further it will, I think, be in the interests of lucidity if I preface my remarks by stating that I do not propose dealing with the differential diagnosis of those conditions reputed to be most frequently confounded with acute forms of rheumatoid arthritis. I refer, of course, to acute rheumatism, acute polyarticular gout, acute gonorrhœal rheumatism, and secondary syphilitic arthritis. Now with regard to all these joint affections, if we except acute gout, their association with a definite micro-organism has been more or less clearly established. Apart from these, however, there still remains a number of joint affections hitherto unaffiliated to any organism with which undoubtedly acute rheumatoid arthritis is very commonly confused. In this absence of any bacteriological findings we have to rely upon those clinical features which apparently distinguish acute rheumatoid arthritis from these non-suppurative types of infective arthritis. Unfortunately, nothing can be gained from the age incidence of these two varieties of joint disorder, for both occur at all periods of life, but something may be gathered from a marked predilection of rheumatoid arthritis for the female sex. In approaching the study of such cases the previous history should be carefully elicited, especially as regards the recent occurrence of some of the infective maladies known to be followed occasionally by non-purulent forms of arthritis, such as dysentery, typhoid fever, and so forth. If such be forthcoming it would constitute strong presumptive evidence that we are dealing with an infective arthritis following on one or other of these diseases rather than one of acute rheumatoid arthritis. Again, in the presence of local foci of infection, such as pyorrhœa alveolaris, otorrhœa, &c., it must not be too readily assumed that the joint condition is one of acute rheumatoid arthritis, for undoubtedly many of the instances of joint trouble occurring in such association are examples of infectious arthritis. But when, as too frequently happens, no past or present source of infection can be detected, reliance must be placed on the following characteristics. Thus in infective arthritis the constitutional symptoms are often much more acute, the temperature is of higher grade, and swelling of the lymphatic glands in association with the infected joints is almost invariable. The spleen is more commonly enlarged, while leucocytosis and a secondary anæmia are usually present.

As regards the articular lesions, though a large number of joints may be involved in infectious arthritis, in my experience such widespread invasion is not the rule. What happens in the majority of instances is that at the onset of the malady the disease attacks one, two, or three joints, and having done so shows no tendency to involve any other articulations, even though weeks or months may have elapsed during which the temperature may have been more or less continuously raised. Now had the condition been one of acute rheumatoid arthritis it would by that time have implicated all or a large number of articulations.

Again, the mode of distribution differs; in infectious arthritis the large joints are by preference attacked, though I have known exceptions to this rule in the case of the small joints of the hand; in rheumatoid arthritis the disease almost invariably begins in the smaller joints. Again, in infective arthritis the joint lesions show no tendency to symmetrical involvement, contrasting with rheumatoid arthritis.

With regard to the character of the articular lesions, nothing can be gleaned from their shape, for the spindle-shaped joints so frequently claimed to be pathognomonic of rheumatoid arthritis are exactly reproduced in cases of infective arthritis, when it attacks exposed joints such as the phalangeal. But the overlying skin in infective arthritis generally shows a definite red blush, whereas in rheumatoid arthritis it is unnaturally white or bluish in colour. Again, widespread inflammatory œdema of high grade is not infrequently present in infective arthritis, and forms a very valuable aid in differentiation.

Finally, apart from articular lesions we find in acute rheumatoid arthritis, as opposed to infectious arthritis, an abundance of collateral phenomena. Consequently in those comparatively rare instances of rheumatoid arthritis in which the disease remains for some time confined to the small articulations of the hand the following suggestion may prove helpful in distinguishing the case from one of infectious arthritis. If the opposite hand, hitherto unaffected by joint lesions, is found to be the seat of vaso-motor phenomena, neuralgic pains, or muscular cramps, the presence of such will be in favour of the condition being one of rheumatoid arthritis. While the foregoing, to my mind, constitute the chief points of distinction between these infective arthritides and the more acute forms of rheumatoid arthritis, it must be confessed that the dividing line is by no means sharply defined. In all probability a satisfactory differential diagnosis will not be available on purely clinical ground, but on bacteriological data, which it is hoped will soon be forthcoming.

Before concluding I would like briefly to discuss those particular points, considered by some to forbid any such sharp line being drawn between the rheumatoid and osteo-arthritic types. I refer, of course, to that very vexed question—namely, the exact significance of the new bony outgrowths occasionally met with in rheumatoid arthritis.

Some observers consider that the presence, even though occasional, of these minor bony proliferations negatives the possibility of any differentiation between these two joint diseases. Personally, I am not disposed to agree with this inference, for the following reasons.

It is generally admitted by most authorities that examples of rheumatoid arthritis classically complete in all their features are constantly to be met with in which no trace of bony outgrowths can be detected by skiagraphy. If this be granted, then it seems logical to infer that new bony formations cannot be regarded even as constant, much less as essential, characteristics of rheumatoid arthritis. In other words, the new bony outgrowths occasionally met with in this disease are secondary features or epiphenomena. As opposed to this, in osteo-arthritis the osseous proliferations, instead of being occasional, are invariable, and integral features in whose absence no diagnosis of the condition could be upheld. Again, the bony outgrowths themselves differ widely in the two diseases, being inconsiderable and spicule-like in rheumatoid arthritis, but massive and rounded in osteo-arthritis.

As to the exact nature of these minor bony proliferations in rheumatoid arthritis, I am not disposed to agree with those observers who would construe such as evidence of the transition of a condition of rheumatoid arthritis into one of osteo-arthritis, but would submit that they allow of a different explanation. Thus the morbid process in the articular ends in rheumatoid arthritis is one of rarefaction and softening. Consequently it follows that by reason of this pathological change these structures are peculiarly susceptible to stresses and strains; in other words, the ends of the bones tend to undergo plastic adaptations in their shape as a result of the retraction of the skin and pericapsular tissues, aided by the pull of the related muscles. From a consideration of X ray photographs I am inclined to think this forms a reasonable hypothesis as to the factors responsible for the altered shape in the ends of the bones. Again, Hoffa, in discussing this question, states that the bony proliferations in rheumatoid arthritis, when they occur, are in proportion to the amount of atrophy that has occurred, and he would regard them as reparative in nature. Now were the proliferative changes in rheumatoid arthritis of the same nature as those of osteo-arthritis, one would expect that their size would be in relationship to the duration of the disease. On the contrary, it would appear from the anatomical researches of Müller, Kachel, and others, that notwithstanding the existence of the disease for prolonged periods, in one instance for over 20 years, bony outgrowths were absent, whereas in other of much briefer duration slight bony proliferations were present.

Approaching this vexed question now from the clinical standpoint, it does not appear to me that the existence side by side, in the same patient, of rheumatoid and osteo-arthritic lesions can be construed as evidence of their identity, or that one condition passes into the other. It is certainly true, as McCrae and others, including myself, have observed, that in any given case, while some of the joints may be of a rheumatoid type, other articulations in the same individual may be of osteo-arthritic character. But such instances of the overlapping of the two varieties are comparatively rare, and, as Goldthwait, in discussing this point, contends, the articular lesions can usually be discriminated by their onset at different periods of the patient's life and by their distinctive and widely differing characters.

We have an analogy in the case of gout and osteo-arthritis, the lesions of which, as Hilton Fagge demonstrated anatomically, are to be met with in different joints of the same individual. We do not in this case therefore presume that gout and osteo-arthritis are one and the same disease, or that they graduate one into the other, because they occasionally co-exist in the same patient.

Finally, in order to settle this vexed question more speedily, it is highly desirable that pathological investigations should go hand-in-hand with careful observations, as it is this lack of associated action on the part of the pathologist and clinician that has led us for so long erroneously to identify these two fundamentally distinct joint disorders, rheumatoid arthritis and osteo-arthritis.

Bath.

Medical Societies.

MEDICO-LEGAL SOCIETY.

Deodands.—Malpraxis in Ancient Law.

A MEETING of this society was held on March 22nd, Sir JOHN TWEEDY, the President, being in the chair.

Dr. W. WYNN WESTCOTT read a paper on Deodands. Traces of the custom of declaring an animal or an inanimate object which had caused a death to be forfeited were, he said, to be found among many ancient peoples. In England, Bracton, who lived about 1250, wrote: "Omnia quæ movent ad mortem sunt deodanda" ("All things which lead to a death are forfeit to God"). Curious distinctions were sometimes made; for example, if a moving horsed carriage caused the death of a man both horse and carriage were deodand, but if a man fell from a wheel at rest the wheel only was forfeit. If an infant under the age of discretion was killed by a fall from a cart in motion no deodand was due, the infant not being a reasonable creature. In early days the forfeited animal or object or its value was delivered over to the priesthood, but later, when the king became more powerful, the forfeit went to the Crown as compensation for the loss of a subject. This procedure continued until the abolition of deodands in 1846. It was of great interest to note that this was contemporaneous with the passing of the law commonly known as Lord Campbell's Act for compensating the families of persons killed by accident.

Dr. H. OPPENHEIMER read a paper on Liability for Malpraxis in Ancient Law. From the earliest periods, he said, suffering humanity had been the happy hunting-ground of ignorance and imposture. It was not, therefore, extraordinary that from the dawn of civilisation legislators had found it necessary to safeguard the sick against ill-treatment at the hands of those who had undertaken to restore them to health and vigour. In ancient Egypt the theocratic form of government was evolved to perfection, and the practice of medicine was restricted to a class of priests who had made a study of the sacred books of Hermes and were bound to treat their patients according to the rules laid down therein. If they deviated from the law they did so at their peril. If whilst following the rules they did not succeed in saving their patients they were held free from all guilt; if, however, they deviated from the law and were unsuccessful they underwent capital punishment. As an example of the methods of treatment Aristotle said that the medical priests were forbidden to purge their patients before the fourth day of treatment. The harshness of the law was not so much due to solicitude for the patient as to anxiety to prevent sacrilege, for that was what breach of the rules amounted to, medicine being divine in origin and the sacred books having been inspired by Isis herself. In the ancient Chinese codes it was provided that where a doctor deviated from the established rules and practice, and thereby killed his patient, he should be held excused if it appeared to be simply an error, but should be obliged to quit his profession for ever. If, however, he intentionally deviated from the rules, and while pretending to remove the disease of the patient aggravated the complaint in order to extort money for its cure he should be punished as a thief. If the patient died the medical practitioner who was convicted of having designedly employed improper medicines or otherwise injured his patient was put to death by beheading. Here, then, as in Egypt, conformity to the traditional rules of practice was enforced, but as a legal and no longer as a religious duty. In ancient Persia malpraxis had a somewhat different significance: it meant unqualified practice, whether successful or unsuccessful, and it entailed the penalty of death by being cut in pieces. A candidate might try his skill upon the common people with impunity, but he could only treat a true believer, a worshipper of the sun, if he had passed the statutory tests. This was a delightful piece of class legislation in favour of the aristocracy; the same distinction between man and man was to be found in the laws of Hammurabi, king of Babylon. The code, which was the oldest in existence, contained the following provisions: 218. "If a surgeon has operated with the bronze lancet on a patrician for a serious injury and has caused his death, or has removed a cataract for a patrician and has made him lose his eye, his hands shall be cut off." 219. "If the surgeon has treated a serious injury of a plebeian's slave with a bronze lancet, and has caused his death, he shall render slave for slave." 220. "If he remove a cataract with the bronze lancet and made the slave lose his eye he shall pay half his value." In the Hindu law they found the same principles of class distinction, but here the extraordinary regard for all life which formed one of its tenets had triumphed over another fundamental principle, the caste system, for the ordinances of Manu laid down in quite general terms "all physicians and surgeons acting unskilfully in their several professions must pay for injury to brute animals the lowest, but for injury to human creatures the middle, amercement." In Greece liability for malpraxis did not exist. In Rome, wrote Paulus, he who "brings about the death of the patient is relegated to an island if belonging to the higher classes; but if of lowly rank he suffers capital punishment." This, however, only applied to intentional poisoning. In the earlier years the physicians were in the position of tradesmen of a low grade, but later, thanks to the influx of highly cultured Greek physicians, medicine was converted from a trade into a profession, and the practitioner became responsible for negligent treatment.

LIVERPOOL MEDICAL INSTITUTION.

Cerebro-spinal Rhinorrhœa.—Appendicitis.—Traumatic Neuroses.

A MEETING of this society was held on March 31st, Mr. G. P. NEWBOLT, Vice-President, being in the chair.

Dr. J. E. MCDOUGALL showed a case of Cerebro-spinal Rhinorrhœa of Spontaneous Origin. He said that the escape of the cerebro-spinal fluid from the cavity of the skull in fracture of the base was well known, but that its spontaneous discharge from the nose in the absence of injury was very rare. The patient was a man, aged 31 years, whose illness commenced at the age of 17 years with convulsive movements of the right arm and leg, with loss of consciousness. He had also severe frontal headache. The discharge of the fluid began nine years ago and persisted for two years. The present discharge had continued for 18 months; it was continuous day and night and averaged a little over a pint in the 24 hours. The nasal cavity was normal. The fluid gave the ordinary reactions of cerebro-spinal fluid.—Dr. T. R. GLYNN referred to a case of cerebro-spinal rhinorrhœa already published.

Mr. R. W. MURRAY read a paper on 151 cases of Appendicitis that he had operated upon during the last three years. He was of opinion that in the last 20 years the type of the disease had altered, and that the outstanding features of appendicitis as met with to-day were (1) the increased frequency of the disease; and (2) the increased virulence of the poison. He said that as soon as the diagnosis of appendicitis had been established arrangements should be made for an operation to be performed; the trouble was thus confined to the appendix and might be removed with the appendix. The risks attending an operation made under these conditions were known to be few; the dangers of delay were known to be many.—Mr. RUSHTON PARKER said that in some cases the appendix when removed showed no outward sign of disease, but on slitting it up a stricture or other alteration was found. Though early operation had often been justified by the discovery of even gangrenous change, yet sometimes the refusal to submit to operation had been followed by complete recovery and without recurrence. Again, symptoms of apparent recurrence due to adhesions and the resulting griping sometimes justified waiting, which was rewarded by recovery. At operations signs of spontaneous recovery had been revealed and amply explained the disappearance of large and indurated swellings; these were commonly noted in the pre-operation days. Even disappearance of the appendix by partial or extensive atrophy had been thus observed and might explain the impossibility of finding it during operation.—Mr. DAMER HARRISSON agreed in considering that the virulence of appendicitis was greater than formerly.—Mr. F. A. G. JEANS had met with two cases in which he could not find the appendix.—Dr. J. C. M. GIVEN mentioned two instances in which the patient was attacked with violent pains in the region of the appendix; both patients refused operation and were perfectly well in 36 hours.

Dr. T. R. GLYNN read a paper upon the Traumatic Neuroses and limited the term to neurasthenia, hysteria, and hystero-neurasthenia. He gave an historical review of the progress of knowledge on these states, mentioning the work of Erichsen, Oppenheim, Charcot, Thomsen, Russell Reynolds, and Page. He considered that predisposition from inheritance or habit was of great importance, and discussed the relative effect of physical and emotional shock. He instanced a number of examples from his personal experience and found that a hystero-neurasthenia was the most common form of the neurosis. He described in some detail the symptoms of the several varieties and laid stress upon the period of premeditation before the advent in full force of the neurasthenic symptoms. He contrasted the taciturn behaviour and gloomy appearance of the traumatic cases with the loquacity of the ordinary neurasthenic. Dr. Glynn considered the stigmata of hysteria, and was of opinion that these were rarely if ever simulated. He discussed the prognosis and showed a well-marked example in whom the symptoms had persisted for many years.—Dr. W. B. WARRINGTON said that he thought the historical method was the best way of studying this condition. He alluded to the possible organic nature of the symptoms in some cases. He instanced especially the severe symptoms following injury to the head without fracture of the bones, and mentioned that these had in some cases been correlated with small multiple vascular lesions. He also alluded to the development of a true traumatic myelitis, the symptoms appearing some time after the injury, and the lesion being of a very different nature to that of the ordinary system diseases. He alluded to the work of Babinski on the nature of the hysterical stigmata, but could not fully follow this distinguished French physician. Dr. Warrington touched upon

the effect of the law of compensation as affecting the development and influencing the course of these neuroses.—Mr. RUSHTON PARKER said that in cases of purely surgical interest malingering was common.—Dr. ALBERT E. DAVIS said that traumatic neurasthenia was, in his experience, rare. He regarded these states as largely due to unconscious suggestion on the part of the medical attendant and as closely allied to malingering. He attached the greatest importance to a thorough examination of the mobility of the spine. When this was perfect he was inclined to give a cheerful prognosis, and found that this was generally correct.—Dr. ROBERT STEVENSON made the important statement that in one firm where regular labour was employed, and in which the custom was to continue the full wage with easy work during the disability from an injury, neurasthenia had been unknown in ten years, whereas in another which employed casual labour and where the half-wage system and no work was adopted neurasthenia was very common.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Action of Radium on Tissues.—Ferric Chloride Reaction in Diabetes.—Exhibition of Specimens.

A PATHOLOGICAL meeting of this society was held on March 18th, Dr. J. B. HELLIER, the President, being in the chair.

Mr. A. S. F. GRÜNBAUM and Dr. HELEN G. GRÜNBAUM communicated some of the results of the action of Radium on Normal Tissues—viz., on skin from a human subject, and on the cells of the liver, gall-bladder, and stomach in monkeys. The skin was acted on for 5, 6, 24, and 30 hours respectively. The effects were those of gradually increasing inflammation with subsequent destruction of white corpuscles and apparent proliferation of the surface epithelium. The liver cells after an exposure of 19 days were affected only in the neighbourhood of the tube. The gall-bladder epithelium seemed quite unaffected, and the stomach epithelium was in one case replaced locally by fibrous tissue.

Dr. J. F. GASKELL read a paper on the importance of the Ferric Chloride Reaction in Diabetes. He said that the ferric chloride reaction in the urine could be taken as a measure of the acidosis present, when of mild degree. It indicated by the colour produced the amount of diacetic acid present. The β-oxybutyric acid, which could not be conveniently tested for, was roughly proportional to the diacetic acid present. Coma was always accompanied by a very deep colouration of the urine with ferric chloride. The exceptions found in the literature were of doubtful value. The appearance of the ferric chloride reaction was the signal that a benign case of diabetes had become a severe one, and that the tissue metabolism had become profoundly altered. In the early stages the patient was still amenable to treatment and might be reclaimed into the benign class, but if the reaction was strong treatment would only have a temporary effect in warding off the inevitable end. The direct change to a strict carbohydrate-free diet was both unnecessary and dangerous, as it often gave rise to a ferric chloride reaction when none was present, or increased one already existing. The more gradual reduction was just as efficacious and had not this objection. On these counts it was therefore very important to keep a close watch on this reaction, both as to its presence or absence, and also as to the depth of colour obtained. There was not at present a satisfactory method of influencing the production of acetone bodies. Baer and Blum had, however, in phlorizinised dogs got results by feeding with certain substances, which gave ground for the hope that such a result might be obtained.

Dr. J. KAY JAMIESON showed a specimen of Unobliterated Vitelline Duct, with Umbilico-mesenteric Band, in a full-time fœtus.

Various specimens were also shown by the PRESIDENT, Dr. G. W. WATSON, Dr. A. L. WHITEHEAD, Mr. GRÜNBAUM, Mr. H. SECKER WALKER, Mr. W. GOUGH, Dr. C. OLDFIELD, Dr. T. CHURTON, and Dr. MYER COPLANS.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Bronzing of Skin.—Pigmentation in Pernicious Anæmia.—Glycosuria following Graves's Disease.

A MEETING of this section was held on March 18th, Dr. W. G. SMITH, the President, being in the chair.

Dr. J. M. FINNY exhibited a case of Discolouration of the Skin in a lad, aged 17 years. The discolouration was very marked on the neck, trunk, genitals, nipples, and wherever there had been pressure or irritation, such as round the waist. Deep pigmentation had taken place wherever there had been a burn or sore. The knuckles were all very dark; but the face was very little affected. He thought it might have been the "dirt disease," but on applying a blister the epidermis was quite black when taken away, and was found to contain true pigment. Dark pigment spots were to be seen coming in the patch where the blister had been. The mucous membranes were very little affected except for a small spot on the lip and two lines on the palate. A number of white marks on the back showed spots which had been torn. The scars as well as the whole skin were perfectly soft. The boy had no symptoms of vomiting or fainting. He had improved in every way since coming into hospital, though his appetite was not such as they associated with a boy of his life. The kidneys were sound, and the blood count showed no great loss of red corpuscles; the hæmoglobin was 60 per cent.

Dr. T. G. MOORHEAD exhibited a young man who had been admitted to hospital in January last with the typical symptoms of pernicious anæmia. His red corpuscles were reduced to 480,000 per cubic millimetre and his hæmoglobin to 20 per cent., his index being, therefore, about 2. He had a slightly enlarged spleen. Now the red cells were 4,200,000 and the other symptoms had disappeared. The principal interest of the case was the association of pigmentation with pernicious anæmia, which was rare. The first reported case was as recent as 1907, since when only two other cases had been reported. In the case before them there were ink-like patches spreading from the lips on each side, principally where the cheek came in contact with the teeth, in addition to a certain amount of pigmentation on the inner aspect of the lips. In two of the cases previously reported Addison's disease was confirmed at the necropsy. It had been suggested that the use of arsenic might account for the pigmentation, but in the present patient arsenic had only been used for a week prior to the patient's admission. He had suffered from malaria in India a year before.—The PRESIDENT discussed the cases.

Dr. W. A. WINTER read a short account of a case of Glycosuria following Graves's Disease. The patient was a woman, aged 59 years, who had well-marked Graves's disease 10 or 12 years ago, and was recently admitted to Steevens' Hospital as a case of diabetes. No trace of Graves's disease remained except slight exophthalmos. She had not been treated for it, and her recovery took place nine years ago. The glycosuria was accompanied by all the symptoms of diabetes, the specific gravity of the urine being 1050 on her admission to hospital, while there was 6·5 per cent. of sugar present in the urine, which contained neither albumin nor diacetic acid.—Dr. H. C. DRURY said the case was the fourth recorded in Dublin, in addition to one under his own care. The condition had been considered a fairly rare one, but it would appear that it only required attention to be directed to it to show that it was not so uncommon as had been thought.—Dr. FINNY said the question as to whether the thyroid and pancreatic secretion depended on one another was a point of considerable interest. The general view of the association of glycosuria and Graves's disease was that it was a very grave complication.—Dr. W. R. DAWSON said he did not know that the occurrence of glycosuria in mental disease was on all fours with its connexion with exophthalmic goitre. In his experience the two forms of mental disease in which glycosuria was found were melancholia and chronic dementia, and it had been attributed to part of the general disorder of metabolism that took place in such cases. Glycosuria occasionally followed the administration of thyroid as a drug; that might possibly be correlated with its occurrence in exophthalmic goitre.—The PRESIDENT said

they must be aware of mistaking a coincidence for a true association. Glycosuria and albuminuria were frequently associated, and in true diabetes it was not rare for albuminuria to develop. There were, undoubtedly, a great number of carbohydrates which they could identify, and there were many varieties of proteins which they could not so easily distinguish. The result was that they had a larger book of scientific evidence in regard to the physiological chemistry of the carbohydrates than of the proteins. Still, the two conditions were liable to go together in clinical practice, and, speaking generally, the appearance of sugar in the urine was undoubtedly an example of a disorder of a metabolic function which could easily be upset by a great variety of causes. There were three broad groups of relationship between glycosuria and clinical medicine: first, with the nervous system; second, with the three ductless glands, the thyroid, the pituitary body, and the adrenals; and third, with the secretory glands; but there was also room for a small margin of cases referable to the kidney.

Dr. J. A. MATSON exhibited a case of Amyotrophic Lateral Sclerosis. The case was perfectly typical. The symptoms were first noted in October, 1908.

Dr. T. P. C. KIRKPATRICK gave an account of the Pioneers of Anæsthesia, and illustrated a very interesting communication by numerous lantern slides.

Reviews and Notices of Books.

The Open-air or Sanatorium Treatment of Pulmonary Tuberculosis. By F. RUFENACHT WALTERS, M.D., B.S. Lond., M.R.C.P. Lond., F.R.C.S. Eng., Physician to the Crooksbury Sanatorium. London: Baillière, Tindall, and Cox. 1909. Pp. 323. Price 5*s.* net.

IN this work Dr. Walters has given a full description of the methods of treatment employed in a good open-air sanatorium. It is intended for the use of physicians in such an institution or in private practice. The author very rightly points out that many people refuse to undergo systematic treatment for pulmonary tuberculosis until the disease is well advanced and correspondingly difficult to treat satisfactorily, partly because in the early stages of the disease the patient frequently feels fairly well, and partly because of an exaggerated idea of the discomforts of sanatorium life. A stay at the seaside or in the country is often substituted, and not infrequently harm results because the patient is ignorant of the fundamental rules of the life he should lead, and believes that he has only to walk about and eat large meals in order to become quite "cured." We agree with Dr. Walters that in dealing with intelligent patients it is a great advantage if the medical attendant can secure their coöperation by explaining the reasons for the treatment adopted. Further, many patients desire a reliable book suggesting how and where they should live on leaving a sanatorium, also the precautions which should be adopted to prevent infection.

Dr. Walters found it difficult for practical reasons to publish the technical and the non-technical details in separate volumes. He, therefore, combined them in one, the first part being concerned with matters which patients themselves should know, this at the same time forming a convenient summary for the practitioner, while the second deals with more purely technical matters. Sound advice is given as to the treatment in the patient's home. The whole life of a patient undergoing treatment for tuberculosis is carefully described, details as to rest, exercise, and diet being fully given. Dr. Walters takes a broad-minded view of the subject and consequently escapes many of the errors which other observers have fallen into. We think, however, he condemns too severely the method of taking the temperature by the mouth. It has been conclusively proved that for all practical purposes the oral temperature may be relied upon, and equally good results are obtained in those institutions where this method is in use as in those in which the plan of taking the temperature in the rectum is in vogue.

We have read this volume with much interest and can recommend it to those of our readers who wish for full instructions on the sanatorium treatment of pulmonary tuberculosis. It will be noticed that in many particulars Dr. Walters's views are exactly endorsed in an interesting paper by Dr. Wethered which we publish in this issue.

Lehrbuch der Physiologie des Menschen. Herausgegeben von W. ZUNTZ und A. LOEWY. With 306 illustrations and two plates. Leipzig: F. C. W. Vogel. 1909. Pp. 763. Price 24*s.*

THE scientific reputation of the editors is a guarantee of the quality and up-to-dateness of their own contributions and those of their various collaborators. Amongst the latter are the well-known names of the veteran physiologist Exner of Vienna, Verworn, Cohnheim, Kreidl, and Nagel, each and all of whom have left their mark in the annals of physiological discovery. The lamented death of the genial and accomplished Professor Langendorff of Rostock delayed the issue of the work, but from his pen we have the excellent chapter on the Circulation of the Blood (46 pages), a concise epitome of the subject illustrated by many excellent, well-printed tracings of blood pressure. Of the 23 chapters into which the work is divided Verworn leads off with a short (16 pages) but terse account of General Physiology, much on the lines of his well-known standard work on this subject. Müller of Rostock deals with the Chemical Composition of the Body (24 pages) and with the Morphology and Chemistry of the Blood (45 pages). To Professor Weiss of Königsberg is entrusted the Physiology of Muscle and Nerve. Having regard to the value and importance of Einthoven's string galvanometer, it would have been well to give a fuller description of the instrument, a figure of the apparatus itself, and a typical tracing from a muscle or the heart.

In the 56 pages at his disposal Exner gives an excellent account of the Central Nervous System, a subject to which he has himself made very considerable contributions, and we are glad to see an account of hypnosis and an instantaneous photograph of Czermak's experiment on a crayfish. Professor Kreidl of Vienna deals with the Cranial and other Nerves, and also with hearing and voice and speech (16 pages). The senses are distributed as follows: general physiology and special physiology of the lower senses—smell, taste, temperature, pain, pressure, motion, and position—to Nagel of Rostock (34 pages); and vision to Schenck of Marburg (59 pages). The account of the senses is specially full and illuminating—not of course nearly so full as the same authors have contributed to the "Handbuch der Physiologie," now being edited by Nagel. Du Bois Reymond deals with the Mechanism of Bodily Movement (17 pages), a subject rather apt to be neglected in modern text-books, but withal one of exceeding practical importance and daily interest. He also gives a very readable account of the innervation of the respiratory apparatus. The Chemistry of Respiration is discussed by Johannson of Stockholm, who has devoted much attention to this subject. Spiro of Strasburg treats in an adequate manner Lymph Absorption and Assimilation, while to Ellenberger and Scheunert of Dresden is assigned Digestion (78 pages). Starling's work on the "law of the intestine" should have been more fully gone into and illustrated by means of a figure or two, and we should have welcomed the insertion of the appearances in the intestine, as shown by the bismuth nitrate and X ray method. Perhaps in the next edition a figure of the complex systems of nerves distributed to the

abdominal and pelvic viscera may be added. In any case it is much required. Metzner of Basle has congenial subjects in the Excretions of the Skin and Internal Secretions. The latter subject is very fully gone into and is well illustrated (47 pages). The spleen, however, is very summarily dealt with, and there is no figure of a plethysmograph or record of its rhythmical variations in volume. To the Urine and its Secretion 23 pages are contributed by Cohnheim of Heidelberg. Zuntz in about 50 pages deals in a broad and practical way with subjects with which he is specially conversant—viz., Metabolism and Heat—while his co-editor closes the volume with a short chapter on Reproduction and Growth.

The work does credit both to its editors and to their judicious selection of collaborators. After mature consideration it was decided to omit references to the literature of the various subjects. The book will prove a useful summary and exposition in a broad, practical form of the present state of physiological knowledge, and should be welcomed by all physiologists as well as by students of medicine.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 50. The Theory and Practice of Anti-Rabic Immunisation. By Captain W. F. HARVEY, M.B. Edin., I.M.S., and Captain ANDERSON G. MCKENDRICK, M.B Glasg., I.M.S. Calcutta: Superintendent of Government Printing, India. Price Annas 12, or 1*s.* 2*d.*

Captain W. F. Harvey and Captain A. G. McKendrick, the authors of this interesting issue of the well-known scientific memoirs by the officers of the Indian Medical Service, give us here the result of their investigations on rabies conducted during 18 months. The minuteness of the observations recorded testifies of itself to the arduous nature of the work undertaken. The first record deals with the infecting power of dried rabies spinal cords relatively to fresh rabies virus; the observers show that sharp differences in infectivity exist between fresh, one, two, or three day cords; that there is a difference of infectivity amounting to one-half between three and five day cords, whilst it is also evident that by the third day of drying the rabies cord has lost very much of its original infectivity; and, lastly, that there is an exceedingly gradual diminution in infectivity for five-day cord down to little or none in the nine-day cord. The authors then proceed to consider the rate of desiccation of rabies spinal cord by the ordinary procedure and its bearing upon the use of the cord for immunising purposes. It is seen that the loss of weight continues milligramme by milligramme for about 60 days, whilst with regard to the curve of drying compared with the curve of infectivity, the two curves show a very marked correspondence, so that it may be stated that the rate of loss of infectivity of rabies cord undergoing slow desiccation is directly proportional to the rate of loss of water contained in that cord; slow desiccation means death of the rabies virus, and, therefore, as they consider dead rabies virus to be comparatively valueless for immunisation, it may be held probable that the immunising power of a given portion of rabies cord is a function of the unkilled remnant of rabies virus which is contained in that cord. Next taking up the matter of massive doses of fresh fixed virus in anti-rabic immunisation, they give a table showing: (1) that massive doses of fresh fixed rabies virus may be given to certain animals subcutaneously without danger of infection, and (2) that a small number of inoculations, or even a single inoculation, of such material can confer immunity to subdural infection. The concluding portion of the memoir deals with the question of the existence of a rabies toxin, and as the result of their consideration the authors hold that there is no evidence for the existence of such toxin, whilst there is abundant evidence for the toxic action of foreign nerve material. Their final conclusion is that the quantity of living fixed virus and the duration of time of administration are the only points which need be considered in making out a scheme of anti-rabic treatment. In addition to the above points alluded to in this well-reasoned memoir we find the technique for the estimation of the salinity of small quantities of blood serum clearly given.

The volume indicates the good scientific work that is being done by the officers of the Indian Medical Service.

A Practical Treatise on Ophthalmology. By L. WEBSTER FOX, M.D., LL.D. London and New York: D. Appleton and Co. 1910. Pp. 807. Price 25*s.* net.

TEXT-BOOKS of ophthalmology may be divided into three classes—viz., manuals for elementary students, text-books for more advanced students, and exhaustive treatises designed for the use of specialists in the subject. Dr. Webster Fox's book belongs to the second category, which already includes the admirable text-books of Fuchs and de Schweinitz, the latter a practitioner in the author's own city of Philadelphia. It is a bold deed to enter into competition with Fuchs and de Schweinitz in a field which they have long held brilliantly against all comers. Dr. Webster Fox's great reputation both in his own country and in Europe marks him out as a worthy competitor. It remains to be seen whether his temerity is justified in the event.

The work displays no noteworthy originality of design. The usual method of treating the various sections of the subject, a method so obvious and logical that it is scarcely likely that it can be improved, has been adopted. The minor detail of treating optical principles and errors of refraction towards the end of the book is to be deprecated as eminently illogical. Two chapters on the ocular manifestations of general diseases hold out the hope of a useful addition to the ordinary scheme, but minuter investigation fails to justify their insertion, for they are too cursory and the information is too nebulous to be of much real service. A final chapter on laboratory "technic" falls under the same ban; it is futile to attempt adequately to cover the whole range of the technique of ocular pathology and bacteriology in less than 40 pages.

After a very short and superficial description of the development of the eye its anatomy is discussed. The designation of Bowman's membrane as elastic is only noteworthy as an example of not infrequent evidence throughout the book of archaic views now generally held to be disproved. "Sattler's layer or chorio-capillaris" on p. 16 is a little error which should be corrected in the next edition. The description of the external examination of the eye is too scanty, and is lacking in that method and precision which are so essential in teaching. Indeed, the book abounds with vague statements which cannot be condemned as inaccurate, but which require modification and explanation to make them of real value. In the chapter on the lids, however, no less than 16 operations for ptosis are described, and the operative treatment of entropion and ectropion receives almost equal attention.

The treatment of diseases of the lacrymal apparatus for the most part follows the lines of the older school of ophthalmologists. The statement that "extirpation of the sac is recommended as a last resort, but the difficulty encountered in performing this operation usually causes it to be changed into one of destruction by the use of caustic and the cautery" betrays a pessimism which will be generally regarded as unwarrantable. The chapters on diseases of the conjunctiva and cornea are detailed and accurate accounts. In dealing with the uveal tract two forms of "serous choroiditis" are distinguished, "one constituting acute inflammatory glaucoma"; this is a reversion to the pathology of Mackenzie's day, and is not the only example that might be quoted where the pathological teaching is weak.

There is much valuable information in this text-book for those who are qualified to read it in a critical spirit, but as a book for students it can be recommended only with reserve and not as a really successful competitor with the books already in the field. The printing and illustrations are good, though many of the latter are borrowed.

A Text-book of Experimental Physiology for Students of Medicine. By N. H. ALCOCK, M.D. Dub., D.Sc. Lond., and F. O'B. ELLISON, M.D. Dub. London: J. and A. Churchill. 1909. Pp. 139. Price 5*s.* net.

Professor E. H. Starling in the preface to this book states that London teachers have felt that the courses in practical physiology were unsatisfactory and did not meet the requirements of the medical student. The syllabus in the revised regulations of the University of London is, it appears, more in accordance with these requirements, and the present work is an attempt to put this syllabus into practice.

Apart from a description of the dissection of a rabbit at the beginning of the work, the course is divided into 37 lessons. Under the head of muscle four lessons are included, which deal with batteries, coils, keys, twitch tetanus, action of drugs, and electrical changes. To the circulation eight lessons are accorded, including the anatomy of the heart of a sheep, the arterial schema, instruments for studying the blood pressure and pulse, the plethysmograph and the capillary circulation, and experiments on the frog's heart. Under the heading "The Circulation in a Decapitated Animal" we find that "the animal is killed under chloroform or ether anæsthesia, and artificial respiration arranged by the demonstrator." On this animal the blood pressure is measured and the effects of adrenalin tested. The actions of the cardiac nerves are to be studied in the carcass of a decapitated cat. One lesson is devoted to vaso-motor nerves, the actions of the depressor and splanchnic nerves and asphyxia, while there are two demonstrations, one of vaso-dilator nerves in a dog and the other on the production of lymph.

Three lessons are assigned to digestion, and these include a demonstration on movements of the intestines. It does not appear whether the lesson on the innervation of the pelvic viscera is or is not a demonstration. Four lessons are devoted to respiration, and these are the only lessons which touch on chemical matters; two to the blood, including the blood gases. The secretion of urine is shown by two demonstrations, one for the act itself and the other for the influence of local vascular changes on the secretion, which, of course, includes recording the volume of the kidney.

One lesson suffices for temperature and heat production in man and mammals. To the nervous system four lessons are given, and these include electrotonus, tendon reactions, spinal reflexes, velocity of nerve impulse, and a demonstration on cerebral localisation. To the special senses are allotted six lessons on familiar lines.

We quite agree with the writer of the preface that "the student who has conscientiously worked through the exercises will find that the knowledge gained thereby will materially assist him in his future work—i.e., in the comprehension and treatment of disease." How many medical students in London, however, carry out such a full programme?

Allen's Commercial Organic Analysis. Fourth edition. Entirely rewritten. Edited by HENRY LEFFMANN, M.A., M.D., and W. A. DAVIS, B.Sc., A.C.G.I. London: J. and A. Churchill. 1909. Pp. 576. Price 21s. net.

WE feel sure that most analytical chemists will in one way regret that the march of events has necessitated the presentation of Allen's great work on "Commercial Organic Analysis" in practically the form of a new work. They will miss the familiar original volumes which contained such a store of valuable practical information on so many matters pertaining to commercial organic analysis. The identity of the old volumes is quite gone in the first volume now issued of the fourth edition. The printing is different, the paragraphing is different, and it is evidently intended to re-arrange and to re-entitle many of the sections. "Allen's Commercial Organic Analysis" is, in fact, to be in future a kind of international dictionary on the subject, the articles being contributed by a number of well-known writers on analytical subjects, who subscribe their names. Thus in the first volume are ten articles which comprise (1) preliminary considerations, by William Davis, B.Sc., as, for example, physical properties, action of solvents, the use of the spectroscope, and so forth; (2) the alcohols, by G. C. Jones, F.I.C.; (3) malt and malt liquors, by Julian L. Baker, F.I.C.; (4) wines and potable spirits, by G. C. Jones; (5) yeast, by Emil Schlichting; (6) neutral alcoholic derivatives, by Henry Leffmann, M.A., M.D.; (7) sugars, by E. Frankland Armstrong, D.Sc.; (8) starch and isomers, by the same writer; (9) paper and paper-making materials, by R. W. Sindall, F.C.S.; and (10) acid derivatives of alcohols, by Henry Leffmann. This list practically forms the contents page of the original edition. The original author himself, it appears, found that the work which he so ably started grew, as it was bound to grow with our advancing knowledge, too large to be managed by a single writer, and then his health broke down, which culminated in his death in 1904. This did not happen, however, before he had expressed his views as to the plan on which future editions should go. The present editors have met these views admirably; they have chosen the right workers and writers, and there is little doubt that the completed work will occupy, as it has always done, the first rank amongst the works of reference on laboratory manipulation in regard to commercial organic analysis. The task of completing eight volumes of the series is well in hand, for Vol. II. is already in the press, Vols. III. and IV. are about ready, and the remainder are promised as quickly as is consistent with good work. Analysts will be sorry to abandon the old familiar trustworthy volumes, but they will be amply consoled by possessing in the new all that is known up to the present date on the subject of accurate analytical methods applied to commercial organic products.

LIBRARY TABLE.

The Elements of Animal Physiology. By W. A. OSBORNE, M.B. R.U.I., D.Sc., Professor of Physiology in the University of Melbourne. Melbourne: T. C. Lothian. 1909. Pp. 152.—It is the aspiration of the author that his book may serve as a text-book intermediate between the primer and the special manual of human or veterinary physiology, and there fore be of use to students of medicine, veterinary science, and agriculture. As no presumption is made that the reader has studied chemistry or physics, the book may be read with profit by others who may not be entering upon a definite course of professional study. The author has selected the titles of his chapters as follows: Essentials of Life, Mammalian Tissues, Hormone and Nerve, Elements of Biochemistry, The Proteins, Enzymes, Muscle Heat, Nutrition, Digestion and Absorption, Blood Circulation, Respiration, Renal Excretion, Afferent Systems, Central Nervous System Reproduction, Lactation, and Ductless Glands. Most of the illustrations are taken from well-known text-books. The living moving cell is credited with "memory," and also with "intelligence." This is quite an elementary little book, which is certainly not nearly sufficient to meet the wants of the medical student in this country.

Aids to Microscopical Diagnosis (*Bacterial and Parasitic Diseases*). By E. BLAKE KNOX, B.A., M.D. Dub., D.P.H. (Honours), Captain, R.A.M.C.; formerly Assistant Lecturer in Pathology and Bacteriology, Trinity College, Dublin. London: Baillière, Tindall, and Cox. 1909. Pp. 156. Price 2*s.* 6*d.* net.—The title of this book does not quite cover the scope of its contents, for it deals with more than aids to diagnosis of disease by means of the microscope. The author has something also to say on the prophylaxis and treatment of bacterial and parasitic maladies, and in some instances he discusses their etiology and epidemiology. In his preface Captain Blake Knox very properly disclaims any idea of substituting his little volume for any of the excellent text-books on bacteriology, parasitology, or tropical medicine; rather does he present his work as one to be used by candidates with a view to revise the knowledge which they have already gathered from the recognised text-books before presenting themselves for examination. It is not to be used for cramming purposes, but for refreshing the memory of the candidate. We do not quite understand the author in his reference to the incubation period of plague. There are several misprints—e.g., on p. 95, alluding to inoculation as a channel of infection, "scratches and post-mortem accidents have also proved this, and that the period of incubation is about 14 days (shortest 2 days, longest 10 days)," where "14" should be "4." Nor do we accept without qualification the general statement that the case mortality rate of the bubonic form of plague is approximately 75 per cent. No doubt among Hindus this may be the rate, but outside India, and especially among the more resistant white races, the case mortality from that form of plague is considerably lower. The author modestly calls his book a compilation of notes taken in the laboratories of distinguished teachers for whose original ideas and methods he records "an acknowledgment of appreciation." We think that Captain Blake Knox's "Aids to Microscopical Diagnosis" will be found quite useful for revising purposes by those who are about to offer themselves for examination.

Therapeutic Agents of Bacterial Origin.—Messrs. Allen and Hanburys of 7, Vere-street, London, W., have issued recently two small publications which will be found interesting and serviceable by our readers. The first publication deals with the tuberculins and their uses as diagnostic and curative agents. The chief varieties in regard to both diagnostic and curative tuberculins are summarised, and their application is subsequently described. In the second publication there are useful notes on therapeutic sera, bacterial vaccines, and calf vaccine lymph. The notes are issued under the authority of the governing body of the Lister Institute of Preventive Medicine. The application of the various vaccines and their indications are clearly described.

The Prayer Quest: A Physiological Extension. By W. WINSLOW HALL, M.D. Edin. London: Headley Brothers. 1910. Pp. 144. Price 2*s.* 6*d.* net.—Dr. Winslow Hall's little book is devoted to the thesis that prayer is the most important business of life, and he has achieved a success in setting forth his views that prove them to be born of stronger stuff than pietistic emotion. His full appeal will only be to the mystic, but minds of widely different convictions may find much to admire, perhaps to envy, in the enthusiasm and boldness with which Dr. Hall describes the happiness he has found in a certain way of life and of thought, for by the "Prayer Quest" he includes a great deal besides the actual petitioning of God. Professor James, in his monumental analysis of the varieties of religious experience, dwells upon what he calls the religions of optimism, and in this category we must rank the faith here presented. Sect, even creed, is kept out of the book, although its perusal has left us with the impression that its writer could subscribe to the opening sections of a more famous "Religio Medici." At any rate, like Sir Thomas Browne, he has proved himself to have no part in the "general scandal" of his profession. We think his attribution of ill-health to neglect needs qualification, and surely lack of bodily efficiency can only sometimes be considered blameworthy. The book is composed in forcible and well-knit language, and the occasional verses need no apologetic epilogue. We could wish, however, that Dr. Hall would find substitutes for such substantives as "boon," "motive," "sense," and "lamp" when used in the sense of active verbs, and we protest strongly against the verbs "evolute" and "inkle." But in spite of these lapses the poet's touch is revealed.

Girl and Woman. By CAROLINE WORMELEY LATIMER, M.D., M.A. London and New York: D. Appleton and Co, 1910. Pp. 331. Price 6*s.* net.—The subtitle of this work is "A Book for Mothers and Daughters," and except as regards a few points we can warmly recommend it. It is written in clear, simple language, it is not faddy, and its author is evidently a sensible woman who knows what she is talking about. Dr. Latimer deals in the main with the transition period between girlhood and womanhood, and her first three chapters are concerned with the physical, the mental, and the moral disturbances of this period respectively. The two next chapters deal with reproduction and menstruation, and Chapter VI. with sexual knowledge. The remaining five chapters are upon various points of hygiene. The chapter upon the reproductive process is well done in accordance with Dr. Latimer's view that "for a girl to grow up uninformed of these facts and of the natural laws connected with them is doing her a great injustice, because she then enters life unprepared for some of its most serious problems. ..... Our present custom of surrounding all matters of sex and of reproduction with an atmosphere of mystery is a most unfortunate policy." And this brings us to the one portion of the book with which we disagree—namely, the chapter upon sexual knowledge. Here Dr. Latimer says: "No suitable source of information is open to a girl if her mother fails her"; and again "school instruction, no matter how good, can never take the place of a mother's influence in such matters." Instruction and influence, by the way, are two quite different things. In our opinion, it is better that sexual matters should be treated at school by means of the ordinary courses in biology, which will include the reproductive system. In this way a child will learn everything necessary for the purpose of instruction, without the personal element which naturally arises when such matters are talked of between mother and daughter. A mother's influence may well be exerted over a daughter as to modes of life and behaviour, but we think it often useful that the ground-work in sexual knowledge should be given by the school teacher. Not that we wish to imply that Dr. Latimer objects to school education in the matter, only she puts it second while we should put it first in many cases. There can be no general rule. To pass to the rest of the book, the chapters on hygiene, daily life, and dress are for the most part admirable, and Dr. Latimer's remarks on corsets, their use and abuse, are very sound. As to dress, the following sentence (p. 284) wants revision: "The chemise, being made of cotton or linen, soon becomes damp ..... and as both linen and cotton are bad conductors of heat, the warmth of the body easily escapes." If a warm body is surrounded by a *bad* conductor of heat it is kept hot. But as a whole the book is very good.

JOURNALS AND MAGAZINES.

The Dublin Journal of Medical Science.—In the March issue Dr. George S. Walton writes on the treatment of syphilis by intramuscular injections of mercury; he prefers

grey oil for ordinary use, but notes that calomel may be of value in urgent cases, though the pain caused thereby is considerable. Dr. Malcolm K. Acheson discusses duodenal ulcer, and gives some personal experiences of the malady, noting the value of Lenhartz's treatment; and Dr. W. H. Thompson contributes some remarks on the subject of medical education, taking apparently a more favourable view of the existing curriculum than most writers adopt.

The Birmingham Medical Review.—An interesting paper on myopia by Mr. Henry Eales appears in the February number of this review. He points out the many dangers incidental to this condition and enumerates the measures to be taken to prevent its onset in the young. Mr. W. Arthur Loxton deals with rosacea, in which affection he holds that there is always present a predisposing condition of seborrhœa, dietetic errors and dyspepsia acting only as contributory causes.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

GALENICAL PREPARATIONS OF CALCIUM SALTS.
(GALE AND CO., 15, BOUVERIE-STREET, FLEET-STREET, LONDON, E.C.)

THE preparations submitted included elixir calcii chloridi, elixir calcii lactatis, elixir calcii iodidi, unguentum calcii iodatis, and pills containing the iodide and lactate of calcium. The interesting feature of the elixirs is that they are pharmaceutically elegant preparations, bright, palatable, stable. We submitted to analysis the iodide, chloride, and lactate elixirs and found present the amounts of calcium salts stated. The value of these salts is recognised in their power to increase the coagulability of the blood. The lactate has been used in troublesome cases of chilblains. The iodate of calcium ointment has been used, it is stated, with marked success in cases of troublesome persistent eczema, and the pill is frequently exhibited as a specific in various forms of this malady. The fatty basis is very satisfactory, sweet, bland, and clean, and not liable to become rancid.

KOLYNOS DENTAL CREAM.
(KOLYNOS INC., 4, FARRINGDON-AVENUE, LONDON, E.C.)

We have submitted this preparation to careful analysis, and in the result find that we agree with the statement handed to us in regard to its composition. It may be said briefly that the antiseptic agents present are benzoic acid, eucalyptus oil, peppermint oil, and thymol, and the vehicles respectively are soap, precipitated chalk, alcohol, and glycerine. Apart from the effective antiseptic agents present kolynos exhibits distinct skill in the way in which its ingredients are compounded. It is what pharmacists would call an elegant preparation. The mechanical action of a substance intended for application to the teeth is of importance. In the case of kolynos its mechanical action is pleasing and effective, whilst not damaging the enamel. The soap, chalk, glycerine, &c., have been so well compounded that while they cleanse the teeth they do not injure them, and preserve a clean, white, pearly surface. According to a report by Dr. E. Walter, of the Hygienic Institute of the University of Greifswald, the accuracy of which is attested by Professor Dr. Loeffler, kolynos is capable of destroying in a short time diphtheria bacilli, streptococci, and pneumococci, not only *in vitro*, but in the human mouth. By the regular use of kolynos, therefore, the maintenance of mouth asepsis is assured. A mouth-wash prepared on the same lines is an equally satisfactory preparation.

INDIA PALE ALE.
(WORTHINGTON AND CO., LIMITED, BURTON-ON-TRENT, AND MOORFIELDS CHAMBERS, 95 AND 97, FINSBURY-PAVEMENT, LONDON, E.C.)

The care taken to mature this ale and to bring it into fine wholesome condition is analogous to that exercised in the case of light wines. Before it reaches the public it is kept and watched for a definite period at that constant temperature which experience has taught conditions the beer. On examination the beer gave the following results: alcohol by weight, 5·87 per cent.; malt extractives, 3·76 per cent.; malt sugar, 1 per cent.; dextrin, 0·77 per cent.; protein, 0·427 per cent.; mineral matter, 0·30 per cent., containing 0·032 per cent. phosphoric acid; volatile acidity reckoned as acetic acid, 0·012 per cent.; and fixed acid reckoned as lactic acid, 0·207 per cent. Microscopical examination of the deposit showed it to be clean and to contain a few pure yeast cells. The soundness of the beer is evidenced by the small amount of volatile acidity represented in the acetic acid present. The beer is free from preservatives other than hops, no foreign bittering agents were detected, it has a pleasing delicate bitter taste, and is satisfactory to the palate. Beer when it is in the sound condition of this specimen is wholesome.

New Inventions.

A NEW ANASTOMOSIS DEVICE.

THE problem of speedy and safe union of the severed intestinal canal is sufficiently important to excuse my attempt to describe a new device for effecting the same. It may be taken that the most vital and primary considerations are: (1) that any device used to effect the union of one portion of the alimentary canal to any other should be capable of very rapid and very easy application; (2) that this should be effected with as little handling of the parts as possible; (3) that when applied the device should be efficient—i.e., continuously *water- and gas-tight*; (4) should not be capable of having its lumen closed by tumefaction of the mucosa; (5) should be as light as possible; (6) should be easily transmitted by the peristaltic action of the intestine when its work has been accomplished; and (7) should not give rise at any time to obstruction. All of the above points of efficiency are claimed for the instrument to be described. It consists of two lateral halves (metal), which, when joined together, as in Fig. 1, have the appearance of an elongated ovoid or torpedo. The closed instrument provides an elongated lumen, surrounded by an oval serrated clamping edge, having outside this three pins on either side, and, lastly, and most externally, a flattened flange for keeping the opposed peritoneal surfaces in constant apposition. The essential features of the instrument are: (*a*) its shape, which ensures its constant passage (when once free in the intestine) along the intestine. It cannot get athwart the intestine and remain so, because it has a constant tendency to lie parallel to the axis of the bowel. If, however, it were to become temporarily caught across the gut its large aperture will prevent obstructive symptoms. If it lie in the long axis of the gut it must, by reason of its shape, be propelled onwards in the direction of least resistance, and so find its way out. This is an important point in view of the fact that the ordinary Murphy's button has given rise to serious obstructive symptoms (especially in the small intestine) by being caught and held immovably fixed by intestinal tonic contraction (cf. gall-stone intestinal obstruction). (*b*) Its functions are that it renders any preliminary stitching of the gut unnecessary. It renders lateral anastomosis easier than end-to-end anastomosis with Murphy's button. It is designed to prevent all chance of gaping at the site of application until after the peritoneal surfaces are safely glued together, so that no subsequent contraction of the gut will cause leakage. The three pins (see Fig. 2) on each side also act as additional safeguards for fixation, as well as sureties for exactness of apposition at the time of application. At each end of the

instrument is a peg and tube-guide device to effect certain accurate and permanent locking of the instrument. The teeth on the locking pegs (see Fig. 3) after passing up the tubes in Fig. 2 become engaged by a pawl which springs into and engages the teeth on the peg (or ratchet) and will not become undone until freed by the opening key (see Fig. 4) after the instrument is evacuated. It can be made as light as desired and entirely of non-corrosive metal. The instrument tends to cause the formation of a larger aperture of intercommunication than it itself shows, as all the gut wall included within the serrated teeth and the outermost edge of the flanges usually becomes absorbed and destroyed, thus leading to a free communication. It does not necessitate "puckering" of the line of union, with consequent post-operative obstruction. This instrument was devised purely for the lateral anastomosis of the large and small intestine, and the short circuiting of the pelvic colon in senile intestinal atony and the condition called falsely

FIG. 1.

FIG. 2.

FIG. 3.

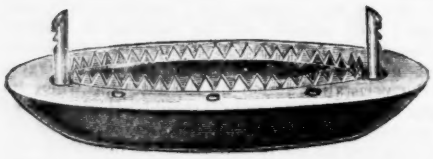


FIG. 4.

congenital or idiopathic dilatation of the colon. It is applied as follows. Where the gut has been resected and a piece removed, as in gangrenous strangulated hernia, &c., half the instrument is inserted into either end of the bowel and the ends sewn up by purse-string and mattress sutures, and all made secure. Each half now lies within either section of bowel. Each half is now taken up by grasping the bowel, and the pegs on one half and the guide-tubes and pins on the other half are gently pressed through the bowel wall by dissecting forceps, the gut wall on either side is incised opposite the lumen of the clamp, the pegs are fitted into the guide-tubes and the halves of the instrument pressed home until the first locking is effected, and, if then the joint is not quite secure, until the second locking is effected, when the bowel wall will be firmly gripped and fixed, and the line of union hermetically sealed. A few Lembert sutures outside are now purely a matter of individual preference. In cases of cancer of the cæcum, where large and small intestine need to be approximated, this device proves useful; also in cases of cancer of the colon. As a means of uniting intraperitoneally the descending colon to the anterior (peritoneal) surface of the rectum low down in the pouch of Douglas it presents several advantages. The instrument described and illustrated has been made to my requirements by Mr. H. L. Trudgett of 26, Darnley-road, Hackney, London, to whom my thanks are due for excellent workmanship.

F. W. FORBES-ROSS, M.D. Edin., F.R.C.S. Eng.,
Late Civil Surgeon, His Majesty's Guards' Hospital, London.

A CURETTE FOR THE EUSTACHIAN TUBE.

EVERY otologist has experienced the reinfection of his radical mastoid operations through the Eustachian tube, and various suggestions have been made as to the best means of closing that pathway. I have found the curetting of the tympanic ostium of the tube to fail very frequently, and attempts at closure by remnants of the tympanic membrane (as suggested by several American aural surgeons) are equally unsatisfactory. I have, therefore, recently devised a

fine curette of steel, welded on a copper stem, which can be passed with ease into the tympanic ostium and outer half-inch of the Eustachian tube, for the purpose of thoroughly curetting this outer portion.

I have now used this curette, which was made for me by Messrs. Krohne and Sesemann, in several cases with excellent results, the curettement appearing completely to close the tube and to cut it off from the nasopharynx.

MACLEOD YEARSLEY, F.R.C.S. Eng.,
Senior Surgeon to the Royal Ear Hospital, &c.

UNITED SERVICES MEDICAL SOCIETY.—The next meeting of the above-named society will be held at the Royal Army Medical College, Grosvenor-road, S.W., on April 13th, at 8.30 P.M., when a paper will be read by Lieutenant-Colonel H. E. Deane (retired), R.A.M.C., on Records of Pulse Rates after Exercises of Various Kinds in Trained and Untrained People, illustrated by sphygmograms.

FIRST INTERNATIONAL SPANISH CONGRESS OF TUBERCULOSIS.—This congress will take place at Barcelona from Oct. 16th to 22nd, 1910. Dr. D. Rafael Rodríguez Méndez, professor of medicine, is the President of the committee of organisation, and has just issued a little handbook on the congress. The congress is to be held under the patronage of the King and Queen and the Queen Dowager, and is officially recognised by the Spanish Government, which has named His Excellency Señor Don Angel de Larra y Cerezo, of the Royal Academy of Medicine of Madrid, as its delegate and representative, while delegates from several South American states will participate. The congress will consider tuberculosis from the scientific, preventive, and humanitarian points of view. It will be divided into the following sections—Bacteriology, Statistics and Demography, Medicine, Gynæcology, Pediatrics, Oto-Rhino-Laryngology, Military Sanitation, Veterinary, Hygiene and Social Action, Sanitary Engineering, Architecture, Serum-therapy, Therapeutics, Pharmacology and Applied Chemistry, Legal and Psychiatric Medicine. There will also be a ladies' committee, over which Donna Leonor Canalejas de Farga, professor of the Normal School of Mistresses of Barcelona, will preside. The following prizes are offered to members of the Congress by the Spanish Government: one of 2500 pesetas and two of 1000 pesetas each for three theses; the Diputacion Provincial de Barcelona is offering one prize of 1000 pesetas for a thesis, and other corporations and societies are offering objects of art as prizes. The theses must be written in Spanish, and will be received by the secretary-general up to August 31st next. They are confined to members of the Congress. There will be an exhibition attached to the Congress, the President of the organising committee of which is Dr. D. Antonio Rodríguez-Morini, whose offices are at Rambla de Cataluña, 43, 2°, Barcelona. There will also be an assembly at the Spanish Medical Press, of which the President is Dr. D. Joaquín Durán Trinchería of the *Revista de Ciencias Médicas*. Travellers are recommended to apply with respect to lodging in hotels and so forth to the Sociedad de Atracción de Forasteros" (Society to Attract Visitors), whose address is Rambla del Centro, 30, bajo, Barcelona. Various excursions will be made with the coöperation of this society. Correspondence should be addressed, according to the nature of the business, either to the President, whose address is Paseo de Gracia, 42, ent.°, Barcelona; or to the Secretary-General (Dr. D. Andrés Martínez Vargas), Gran-Vía (Cortes Catalanas), 604, 1°., Barcelona; or to the Treasurer (Dr. D. Enrique Robledo Negrini), Consejo de Ciento, 323, 1°.

THE LANCET.

LONDON: SATURDAY, APRIL 9, 1910.

The Recommendations of the Departmental Committee on Coroners.

THE Departmental Committee appointed by Mr. HERBERT GLADSTONE (now Lord GLADSTONE) in 1908 to inquire into the law relating to coroners and coroners' inquests and into the practice in coroners' courts has issued in a second report its recommendations upon these subjects, of which a summary was published in THE LANCET last week.[1] As our readers will have seen, some very difficult and complex matters have been closely considered, while one such—namely, the matter of deaths under anæsthetics—will be made the subject of a further report. The declaration of the views of the committee upon this question, which was submitted for consideration as an afterthought, and with regard to which evidence was heard simultaneously with evidence relating to the law and procedure connected with inquests, is awaited with interest. The report, as a whole, is one which should be regarded with satisfaction by the medical profession, for it recognises the importance of enabling the coroner to obtain the best medical evidence reasonable of attainment with a view of establishing the cause of death; while in order that the coroner's position and authority may be strengthened it recommends that the office should be confined to members of the medical and legal professions. Those who read the opinions thus expressed side by side with the Act of Parliament now governing their subject matter, the Coroners Act, 1887, are tempted to wonder how it came about that very little more than 20 years ago all provision for scientific evidence of the cause of death in any but the simplest cases was omitted. A scale of fees for medical witnesses was incorporated in the body of that Act which the committee recognises to be causing great and justifiable dissatisfaction in the medical profession, and which in one instance (the inclusion of the chemical analysis of the contents of the stomach and intestines with the post-mortem examination) it characterises as ridiculous. To take another instance of an anachronism not connected with the progress of science, we need only refer to the retention in the Act of 1887 of the condition that a county coroner must have "land in fee sufficient in the same county whereof he may answer to all manner of people." We need not discuss the usefulness of such a qualification in the reign of EDWARD III. In more recent years it is said to have been satisfied, if any notice has been taken of it, by the possession of a freehold grave in a cemetery, and the committee recommends that in future the requirement should be abolished and that fitness acquired by training in medicine or law, or both, should be substituted. Perhaps the year 1887 must now be regarded as having occurred during a period of transition, and the date at which the future Coroners Act finds its place in the statute book will come to be looked back upon by posterity as the one at which the medical profession found itself definitely established in a position but recently won. An important recommendation of the committee bearing upon the possibilities of future progress and development, not only in scientific discovery and medical science, is that which advises the giving of powers to make rules for the practice and procedure of the coroner's court to a central authority. No such power now exists, and the difficulty of keeping pace with the times by means of fresh Acts of Parliament is obvious.

In the summary of the report which we have published will be found many suggestions and recommendations affecting the general usefulness of the coroner's office, but not of special interest to the medical profession. Among those, however, which are of medical as well as of public interest, by far the most important subject dealt with will be found in paragraph 15. Hitherto the coroner has had to decide whether he should hold an inquest or not without having the power to order a post-mortem examination, the one method by which he could frame his decision with the least possible risk of error. The committee in advising that he should have this power keeps in view the probability that inquests will thereby be diminished, and this recommendation lends weight undoubtedly to the one contained in paragraph 5, to the effect that a coroner should be paid by salary in all cases and not by fees dependent upon the holding of inquests. It also adds support to the contention, upheld constantly and strenuously in THE LANCET, that it is desirable in the interests of the public that all coroners should have been medical practitioners, for a preliminary post-mortem examination may convey little to the man without medical training. In advocating the appointment of medical coroners, however, we have never lost sight of the fact that the coroner's court is a court of law. Legal training and experience are both of very great importance in the exercise of the coroner's duties, and no doubt a combination of medical and legal training presents the most desirable preparation for the post. The need for the coroner to be able to grasp, or shall we say conjecture, the medical aspects of a case without a post-mortem examination to guide him has been combined in the past with the desirability that he should be able to weigh and explain medical evidence to a jury at an inquest. In future, if the coroner should be allowed to order a post-mortem examination as a precedent to an inquest he will have to call upon medical knowledge in no less degree in order to understand the fuller medical information at his command and to apply it to facts which will be in his possession, but which will not have been before the pathologist. The latter will inform the coroner of the physical conditions found in the dead body the potential subject of an inquest. The coroner will have to say whether those physical conditions, which may not by themselves indicate any need for public inquiry, may render an inquest desirable in combination with circumstances as

[1] THE LANCET, April 2nd, p. 942.

to which he has learnt that evidence may be forthcoming. In other words, he will sometimes have to make up his mind as to whether facts, in themselves not inconsistent with natural death or perhaps pointing strongly to it, may in truth be attributed in some measure to criminal acts or culpable neglect, or, at any rate, whether features may exist in the case requiring elucidation. In doing so he will have the advantage of his experience as a coroner and of the information supplied to him as such (part of which may emanate from medical men), but these in some instances might be rendered useless if there were not medical knowledge on his part to supply the link between the matters suggested by his official inquiries and those established by the post-mortem examination. We commend these considerations to the attention of those who at some date, which we hope is not far distant, will undertake the promotion of legislation upon the lines of the committee's report.

The paragraphs in the report dealing with the calling and remuneration of medical witnesses are highly important. Paragraph 29 proposes to do away with a power possessed by the jury to select medical witnesses, which power certainly seems inconsistent with the enjoyment by the coroner of that exclusive authority in his court which a judge should possess. Under Section 21 of the existing Act a majority of the jury may insist upon the calling of additional medical evidence, and may name the witness whom the coroner is then obliged to summon. The curious point with regard to this is that it has been the privilege of the jury only, and that the coroner who is dissatisfied with medical evidence has had no authority to obtain and pay for better, though no doubt he may have been able to do so under the section with the jury's coöperation. The other paragraphs with regard to medical evidence will be found to recommend better provision than now exists for the remuneration of those supplying it, and the granting of power to the coroner to obtain in cases where such may be required the assistance of those highly qualified witnesses who in the simpler everyday cases of the coroner's routine work would be out of place. The committee points to Scotland as furnishing an example of what it holds to be more desirable than the present English system, and makes the important and commendable suggestion that "to give coroners a somewhat wider discretion as to costs—a discretion possessed by all other courts—would go far to remove the friction which sometimes arises between them and the medical profession, and would, on the whole, be conducive to the efficiency of inquests and the public interest." These words will be found in our summary already referred to, and are quoted from a paragraph in which the committee expresses its views upon the question which has frequently been discussed in these columns with reference to the practice of a particular coroner in London in employing a pathologist from outside his district for the making of all post-mortem examinations. With regard to this we note that the committee points out that "clinical evidence may be essential to supplement the evidence as to the post mortem," and adds: "The coroner is in a difficulty because, if the Act is strictly interpreted, he cannot pay both the medical witness who gives clinical evidence and the medical witness who makes and gives evidence as to the post-mortem examination. Every coroner should be empowered to call such medical witnesses as may be necessary for the proper determination of the case." With this the medical profession is likely to be in agreement. The difficulty which has arisen in Westminster during recent years has been due to the coroner employing on his own initiative, and in a manner not contemplated by the Act of 1887, a pathologist whose evidence was not given in corroboration of, but in substitution for, that of any other medical evidence as to the death which might be available. We contributed to the calling of attention to this course, and if as a result a new Coroners Act renders the employment in special cases of an independent pathologist legal, without ousting the evidence of any medical witness who, being summoned immediately before or after death, or being otherwise acquainted with the condition of the deceased, has valuable evidence to give, the investigation of the coroner's jury will be made far more satisfactory than heretofore. We note that, with reference to the medical practitioner to be selected for the making of the post-mortem examination, Mr. A. J. PEPPER, whose unrivalled experience gives weight to his words, said in his evidence before the committee: "In the vast majority of cases the general practitioner is quite capable of conducting the post-mortem examination and giving the necessary evidence." The same witness also said: "I think that any medical man, whether he has attended the case previously or has simply known the person, or has been called in at the time of death or immediately afterwards, should always be called in," and he added that such evidence was undoubtedly essential, whereas to obtain information from a medical practitioner in such circumstances and then to refrain from summoning him as a witness was "perfectly monstrous." Agreeing as we do with these opinions, we should suggest that the enlarged discretion to be allowed under any new statute to coroners in the summoning of medical witnesses might usefully be governed by regulations so as to ensure the calling of all essential witnesses. Such rules framed by a central authority would guide without circumscribing the exercise of the coroner's judgment, and would prevent the reduction of medical evidence to a possibly dangerous minimum in order to save expense at the dictation of an economically minded local authority.

We note with satisfaction that the departmental committee is emphatic in its declaration that the depriving of the officers of medical institutions of all fees in respect of evidence given at inquests is inequitable and should cease. Dr. F. J. WALDO in his evidence ascribed this provision to the prejudice excited by the case of the infamous body-snatchers and murderers BURKE and HARE. In any case, it is another instance of an anachronism which found its way into the Act of 1887, and which has survived to the prejudice of the public and to the injury and irritation of members of the medical profession for many years. That it so survives, in common with other relics of machinery antiquated and obsolete in connexion with the exercise of an important judicial office, is a further reason why the law and procedure affecting inquests should be renewed and amended with as little delay as possible.

Recent Cancer Research.

WE publish to-day two papers based upon the study of mouse cancer, one by Dr. ARCHIBALD LEITCH and the other by Mr. CHARLES WALKER, which should be read in connexion with the two papers presented to the Royal Society from the laboratories of the Imperial Cancer Research Fund, which we published a fortnight ago. All four papers treat of highly specialised investigations similar to many which have been recently reported in our columns and in those of other journals, and we may expect, having regard to the fact that 40,000 or 50,000 experiments are made yearly on cancer in mice and rats in this country alone, that such communications will grow more numerous. There may be some risk that those not working in the special field will have difficulty in appreciating how much further the results, as they are reported, bring us to the solution of fundamental problems in cancer pathology; it will be useful, therefore, to summarise the story as it at present stands, as far as this can be done when the subject matter is so complex.

The successful transference of cancer from one individual to another is merely the experimental production of a secondary growth, with the difference that it is established in an animal other than that in which the primary growth arose. With suitable methods all the clinical and pathological features of the local progress and of the dissemination of a primary growth can be reproduced in mice or rats by introducing a pin's point of cancer tissue—theoretically by a single cell. The lessons which some years of continuous study at many centres and in many laboratories have taught are mainly five. First, it has been demonstrated that the cancer tissue grows from its own resources only, and therefore the increase in the area of a growth is not necessarily, nor even probably, due to progressive transformation of healthy tissue into cancer. Since all the consequences which make up the disease follow from the continued growth of a tiny piece of tissue, the practice based upon recognition of the circumscribed origin of cancer, and therefore on the possibility of its complete surgical removal by cutting into the surrounding healthy tissue, is experimentally justified. Recognition of the force of this demonstration has led surgeons to modify their opinions and their practice. The idea of a pre-cancerous stage has given place in most minds to that of a cancerous growth too small to be clinically recognisable with certainty, while the practice of immediate removal of doubtful thickenings and ulcers has taken the place of expectant postponements, with great improvement in results. Second, the cancer cell has been demonstrated to be practically innocuous to individuals other than those in which it has arisen. While as many as 900 fragments of cancer may be inoculated into a corresponding number of normal mice no fragment may be found to grow, whereas if removed and put back again into the mouse where they arose the "takes" number from 95 to 100 per cent. of the inoculations. For these and many other reasons experimental study has led to the conclusion that cancer is not infectious, that the presence of some 50,000 persons suffering from cancer in the community constitutes no menace either to the public or to the immediate relatives of the sufferers. Third, the cancer cell is part and parcel of the individual attacked. It would seem that we are merely brought back again to a conclusion VIRCHOW held 60 years ago, and JOHANNES MÜLLER, PERCIVAL POTT, and others before him. But THIERSCH, and more particularly WALDEYER, showed VIRCHOW'S idea that the epithelial cells of a cancer crystallised out of the humoral matrix to be wrong. WALDEYER held that these cells grew in continuity with the covering epithelium, and that the secondary growths were the genealogical descendants of transplanted epithelial cells. The modern results are really a confirmation and an extension of those arrived at by WALDEYER in 1867, since when the bacteriological study of disease has been entered upon, and for more than 30 years cancer has been attacked from bacteriological and other parasitological standpoints. The advocates of an exogenous or parasitic origin and those of the autochthonous origin of cancer stood sharply opposed up to the establishment of investigations upon a broad experimental basis. Neither school could effectually refute the arguments of the other, and each was unable to demonstrate the impossibility of an alternative to its own views. Finality, as far as it is ever possible, has been attained by the experimental method, and to-day we believe that few who have done some practical work in the pathology of cancer believe that cancer has analogies with any known form of infective disease. Fourth, the cancer cell has ceased to be intangible and mysteriously entrenched behind unassailable ramparts. It has been brought out into the open and made to disclose its behaviour under all sorts of varying conditions favourable and unfavourable to the exhibition of its powers. True, it is only the properties of the ready-made cancer cell that are being studied, but yet with such exactness that indirect conclusions as to its nature may be drawn with greater probability than ever before. A yearning of 35 years ago—"What a subject for DARWIN would be the cells of a cancer if only they were tangible; how the immortal pigeon would be completely eclipsed, while the hungry pathologist would be filled with food, if only we could observe the variation of tumours under judicious observation!"[1]—has been converted into a reality. The advocates of the autochthonous origin of cancer have long been divided among themselves. While some denied that a cancer cell was different from a normal cell, asserting that it grew because all cells grow if they get the chance, others assumed that only a fundamental biological difference could explain the facts. Here again experiment has enabled a choice to be made; biological differences between normal cells and cancer cells have been shown to exist. In the study of the relative constancy and the variability of tumour cells under artificial propagation light is being thrown upon the nature of the relationship obtaining between the normal cell and its abnormal derivative, and upon the relationship between prolonged chronic irritation and the onset of cancer. Fifth, the cultivation and inoculation of the cancer cell have made it possible to attempt to modify or to rob it of its dangerous properties.

With this special task are concerned the papers we publish to-day by Dr. LEITCH and Mr. WALKER, as were also those

[1] James F. Goodhart, M.D.: On Cancer as Illustrated in Ichthyosis of the Tongue and Allied Diseases resulting from Prolonged Local Irritation, Guy's Hospital Reports, 3rd Ser., 1875, xx.

in our issue of March 19th by Dr. BASHFORD, Dr. HAALAND, and Dr. RUSSELL. Immunity to the inoculation of cancer from one individual to another is now a well-established fact. It can be conferred by an antecedent vaccination either of tumour tissue or of normal tissue of the same species, but as yet it has not been found possible to separate the power of immunising from the vitality and the power of growth. Only living cells immunise. It has been within the common knowledge of experimental investigators that exposure to light, heat, cold, X rays, radium, and physical disintegration or chemical modification rob the cancer cell of its sinister powers to produce tumours.

All of the claimants to the successful induction of immunity from JENSEN and BORREL in 1903 onwards have employed living tissues, although not all have emphasised the point. Thus, writing in April, 1906, EHRLICH stated, "In contrast to my predecessors who have employed carcinoma tissue killed by chemical means, I have used another method of immunising which corresponds to vaccination with an attenuated virus." Certain immunising powers of cancer cells and of normal cells appear to be inseparable from their vitality. This conclusion is arrived at for homologous immunisation—i.e., when tumour tissue or normal tissue is inoculated into animals of the same species—by Dr. LEITCH and by the workers of the Imperial Cancer Research Fund. Mr. WALKER emphasises its importance for heterologous immunisation—i.e., when tumour or testis of the mouse is inoculated into rats with the object of obtaining an anti-serum. The importance of using the living intact cell for heterologous immunisation has not been so prominently emphasised before, and this paper goes farther than the other three in appearing to arouse again hopes that an anti-cancerous serum may yet be found. One of the still unsolved contradictions between the results of different investigators is the unequal success attending efforts to obtain a serum acting on the cancer cells, killing them *in vitro* and curing living mice of tumours. There is no reason to doubt the accuracy of the observations recorded in 1903 by JENSEN, in 1905 by CLOWES, and in 1908 by WALKER, but there appear to be many controllable and uncontrollable factors to be reckoned with before one can be certain that cures have actually been effected. Mr. WALKER cautiously pointed out in his first communication, "Very great and obvious difficulties will have to be overcome before this line of experiment can be carried to the point of treating the human subject," adding that tremendous risks and failures must attend any premature application. Substantial progress, however, has apparently been achieved in defining and discussing the proper standpoint from which to advance.

THE WATER-SUPPLY OF ST. IVES (CORNWALL).—The opening of the new waterworks at St. Ives took place on March 28th in the presence of a large gathering. The new works are situated at Halsetown; the reservoir is eight acres in extent, and has a capacity of 22,000,000 gallons of water. The cost of the undertaking has been £14,640.

The Evolution of the Nursing Home.

THE progress of surgery, especially that associated with the introduction of antiseptic surgery and its more modern representative or development asepsis, has led to enormous changes in the arrangements made in hospitals for the carrying out of those principles that are considered of vital importance by the surgeon of the present day. Great though the changes of recent years have been in the medical wards of a hospital, they have been vastly greater in those portions of the hospital which are devoted to the care of surgical patients and the performance of surgical operations. Rooms and theatres with which the surgeon was thoroughly contented three or four decades ago would now be looked upon as hopelessly out of date and in many ways unfitted to be the scene of any surgical treatment whatever. A lavish expenditure of money has brought most of the hospitals, especially in the larger towns, to a degree of perfection which was unthought of not many years ago. These advances in the arrangements made for the care of surgical cases are, however, in great part confined to hospitals, and they who profit by them are mainly the sick and injured poor. Thus it has come to pass that the greatest facilities for the treatment of surgical cases are utilised, not for those who can best afford to pay for them, but mainly for those who cannot pay at all.

The good that the nation as a whole gets from this perfected technique is large, and the richer sections benefit in a secondary manner from the elaborate care taken of the hospital surgical patients. But at the same time for the wealthy, and also for those who are moderately provided with this world's goods, the arrangements made are far less satisfactory when surgical skill is required. Not many years have passed since all who did not enter the walls of a hospital for surgical treatment had to be content either to remain within their own homes or to receive surgical attention at an ordinary lodging-house; nor was this any hardship when the mortality in the surgical wards of the hospitals was maintained at a high level from sepsis. But with the adoption of the Listerian principles there soon came a time when results could be obtained in hospitals that could not be expected in improperly equipped domestic dwellings. Some years, however, elapsed before any special houses were provided for the reception of surgical cases, although the idea that such houses might be useful was quite an old one. A hundred years ago there were, it seems, some houses where surgeons were in the habit of seeing and treating patients, but it was not until the modern phase of nursing arose in sequence to the discovery of antiseptic surgery that anything like a modern nursing home came into existence. And even after the name of "nursing home" became familiar to the public little real endeavour was made to provide genuine hospital amenities. The building was still an ordinary house, chosen for its nearness to the districts where operating surgeons lived, and from its very construction it could not be looked upon as specially suitable for the treatment of many sorts of cases. Gradually the conditions improved, and the real nursing

home has been evolved. Stress has been laid on the condition of the drainage. The decoration and the furnishing of the rooms have been arranged so as to render them more suitable for patients, and in many cases one or more rooms specially arranged for operations have been added. Yet, with the best intentions on the part of the proprietors of these establishments, the results cannot be regarded by the modern surgeon as wholly satisfactory, and the conditions in many of our nursing homes lag far behind those that exist in most modern hospitals. In the provision of private accommodation suited for the treatment of surgical cases we are distinctly inferior to many other countries. In France and Germany, in Canada and the United States, in Australia and New Zealand, it is customary for surgeons who have an extensive practice to maintain private clinics, as they are called, where they send the patients under their care. These are, in fact, small hospitals where everything that modern science can devise has been done to render the buildings suited for the purpose for which they are employed. The surgeon to whom they belong has full control of the building, the equipment, and the drainage of the hospital. Even the nursing, though under a matron, is carried out exactly according to his wishes, and, in fact, he makes sure that every condition is arranged so as to be best suited for the health and the recovery of the patient under his care. The operating theatre is as perfect as surgical science can devise, and the sterilisation of dressings and instruments is carried out as he would have it. When all this is done the conditions are even more favourable than those in ordinary public hospitals, where, however excellent the arrangements may be, they cannot always be adapted exactly to the requirement of individual surgeons.

In this country the private clinic is now established to some extent, but there are certainly many professional men who do not approve of the innovation. Indeed, some consider that all nursing homes take patients away from the general practitioner to an unfair extent, receiving within their walls cases which could easily be dealt with outside. Undoubtedly this may occur, but against this disadvantage, which is growing less real as time goes on, must be put the obvious advantage to the public of having access to a really well-managed nursing home. There are not too many of them, and it is easy to believe that where money is no consideration the patient's private house could be transformed into a better hospital than many nursing homes can claim to be. For no operating surgeon will dispute the statement that the conditions obtaining in many nursing homes, especially those devoted to surgical cases, are capable of material improvement. This has been widely felt, and there has been a movement for their compulsory registration and periodic inspection. This would be a drastic course to insist upon, but it could be justified. Such inspection would tend to remedy various sanitary defects that certainly exist in some places. But inspection would certainly do nothing to remedy those defects of construction, of management, and of detail which so decrease the chances of successful surgical treatment. It is the surgeon alone who is capable of dealing with these important points. On him rests the responsibility of the outcome of the treatment, and to him must be given the control of all the conditions which make or mar the success of his operation. We have not the faintest wish to depreciate the care and attention bestowed by the majority of proprietors of nursing homes on the cases put in their charge. To the best of their ability they carry out what they consider to be necessary, but they do not, and cannot always, comprehend the importance of many things which are familiar to the surgeon. As matters stand it is only prudent that a practitioner should have personal knowledge of every nursing home to which he may sanction the removal of his patients, and we recommend all medical men, whether they be the family advisers or the operating surgeons, to insist on the right to make the fullest inquiry into the construction and arrangements of any institution which they may design to use.

Annotations.

"Ne quid nimis."

EGYPTIAN OPHTHALMIA.

TRACHOMA, known under the name of Egyptian ophthalmia or by another synonym, military ophthalmia, has for centuries been the cause of much blindness in Egypt. The census of 1907, which probably understates the real number of sufferers, because of the natural reticence to declare personal or family infirmities, shows that more than half a million Egyptians are blind in one or both eyes. Those blind in one eye amount to 3·2 per cent. of the population, while another 1·3 per cent. were returned as blind in both eyes. It is difficult to make comparisons with other countries, but it may be noted that blindness in Egypt is 55 times more frequent than amongst the coloured folk in Idaho, which is the State where blindness is most rife in the United States of America. Russia is one of the European countries where trachoma has wrought terrible havoc among the peasants, till in 1893 a benevolent society in St. Petersburg inaugurated a system of "flying columns" of ophthalmic surgeons and nurses to visit all parts of the country in order to try to relieve the vast mass of suffering from ophthalmia. The seven columns of the first year were increased to 36 by 1898, which treated 50,222 patients, of whom 3432 were found to be irreparably blind. In 1903, when Sir Ernest Cassel presented £40,000 for the relief of ophthalmia in Egypt, it was felt by the Public Health Department that the Russian experiment with certain modifications could be imitated with advantage. Two moveable ophthalmic hospitals were therefore placed under the control of Mr. A. F. MacCallan,[1] each consisting of a dozen large Indian tents furnished with the necessary equipment and a complete set of ophthalmic instruments. The staff consists of two Egyptian surgeons at each hospital, besides attendants and servants. Twelve in-patients are provided for, but the bulk of the work done is among patients who attend daily, including all cases of trichiasis. About 300 patients attend every day during summer and winter, and full clinical notes are kept of every patient treated. Each camping ground in or near a town is occupied for a period of about six months, when work is transferred to some other place. The change is made not because there is any diminution in the number of applicants for treatment, but because it is considered fairer to give to different provinces the advantage of ophthalmic treatment. The patients apparently

[1] The Relief of Eye Disease in Egypt, with some Consideration of the Incidence of Blindness and Trachoma, by A. F. MacCallan, M.B., F.R.C.S. A paper read at the Sixteenth International Medical Congress at Budapest in September, 1909.

belong to the poorest classes and are treated gratuitously. Seven years ago nothing was done for ophthalmic cases in Egypt excepting, to some extent, at the Government hospitals, and there were no ophthalmic surgeons of repute outside Cairo and Alexandria. To-day the travelling hospitals have aroused some interest in the country, £10,000 have been privately subscribed by the Egyptian public for building purposes, and to this sum the Government has added £15,000, besides paying more than £5000 a year for maintenance. In addition to the two travelling hospitals, three permanent eye hospitals are now built or are in course of construction. Trachoma seems to be almost universal among the middle and poorer classes, so that at Tanta, the chief provincial town of Lower Egypt, 96·4 per cent. of the pupils of the Government primary school were found to be suffering from it. Among 18,239 patients examined at the ophthalmic hospitals during the year 1908, no less than 6439 were cases of trichiasis or entropion, in every case the result of trachoma. It is hardly wonderful that Mr. MacCallan should doubt that conditions in past times can ever have been much worse than they are to-day. Yet, at the beginning of the nineteenth century the French military surgeons, such as Bruant and Savaresi, wrote of the prevalent ophthalmia in the French army in Egypt, and said that it attacked equally the rich and the poor, the townsfolk and the peasants, while one of them stated that the greater part of the dogs were blind. Such reports as these caused Lord Wolseley, in 1882, to include in his equipment veils and smoked glasses for the officers and men of the British army in Egypt. Fortunately, there was, and has been, very little ophthalmia in the army of occupation. Dr. F. Pruner, who wrote in 1847 on Egyptian diseases, stated that two-thirds of the foreigners were attacked by Egyptian ophthalmia, and he mentioned 20,000 cases treated in two hospitals which apparently comprised 3000 beds. Other European writers of that date and even later tell us that they were in the habit of paying daily visits in the summer to inquire after the health of their colleagues, some of whom were sure to be ill of the two prevalent diseases—ophthalmia and dysentery. If these accounts are trustworthy we can see that there is a much greater freedom in the present day, at least among the Europeans.

THE TRUTH ABOUT VIVISECTION.

WE have received three pamphlets published by the Research Defence Society dealing with the above-mentioned matter. They are numbered VI., VII., and VIII. The first of the three, called "What the Doctor says," is a reprint of a speech delivered by Dr. R. J. Ryle at the inaugural public meeting of the Brighton and Sussex branch of the society; the second, called "The National Welfare," is by the Bishop of Winchester; and the third, "The Brown Dog," is a simple statement of fact about that notorious animal. The last-mentioned paper conveys its contents by its title, but the two others, that by the medical man and that by the ecclesiastic, should be read by every medical man and recommended to the attention of every layman. Both writers point out that by the results of experiments upon animals lives have been saved and suffering diminished among the human creation, and the Bishop in addition draws attention to the saving of life and suffering which has resulted among brutes by the discovery of the methods of infection of tubercle and of anthrax. It is difficult to convince the fanatical antivivisectionist, not so much because he cannot understand, or will not understand, but because his mental attitude is such that he cannot will to understand. For the ordinary man or woman whose minds are in doubt as to the righteousness or usefulness of vivisection, these papers should be of great value. The practice of vivisection should, of course, be carefully safeguarded. We do not deny that useless pain may have been inflicted in the past by certain investigators, although the perpetual contention that it was inflicted in wanton cruelty is a wicked perversion of truth. But vivisection nowadays, in this country at any rate, and we believe in most countries, is free from this reproach. As a means of research, and carefully safeguarded, it is almost the only method of scientific inquiry which has produced a succession of results of great humanitarian value. And as to the question of pain, we make bold to say that as regards this country there is more pain caused in one week's average shipment of decrepit horses to the continent (and that, it should be remembered, is purely a matter of money-making) than in one year's vivisection. We congratulate the Research Defence Society upon the temperate and accurate way in which these pamphlets are written, and especially on the fact that they have enlisted the advocacy of educated and thoughtful humanitarians among the members of other professions than the medical. In this connexion we note from a correspondence published recently in the daily press that the Church Antivivisection League has attacked the Bishop of North Queensland (Dr. Frodsham) for belonging to the Research Defence Society. The Bishop, in his reply, wonders whether the members of the league "have ever been brought face to face with the actualities of unknown disease," and proceeds to quote instances from the Tropics. He further states: "I cannot pretend to have done anything to relieve human suffering that may be compared with the work of medical men whose names are being held up by antivivisectionists to undeserved contumely. But I have very deliberately identified myself with such men because I believe them to be as adverse to cruelty as I know them to be filled with a burning zeal to alleviate human suffering; because I believe, with them, that experiments upon animals are justifiable, and can be conducted with due regard to animal life; and because I realise that the dissemination of facts upon the value of animal experiments is rendered necessary by the exaggerations and rhetorical license of antivivisectionists." Such a reply is worthy of a Father in God.

METALS AND MICRO-ORGANISMS.

THERE has been for some time a suspicion that metals wage effectual war against our common microbic foes, and a series of interesting experiments communicated to the Royal Society by Dr. A. C. Rankin, demonstrator in bacteriology at the McGill University, gives decided strength to the view. Sundry metals possess not merely a distinct inhibitory action upon the growth of moulds, bacteria, and other micro-organisms, but exert even a germicidal power. Water containing the typhoid bacillus and kept in a clean copper bowl becomes sterile. When air is passed through water containing abundant colon bacilli there is no inhibitory effect. Relatively large amounts of pure zinc with large surface area, placed in water contaminated with abundant colon bacilli and allowed to act for one hour, bring about a recognisable, but not extreme, destruction of the bacteria. Aluminium and copper, under similar circumstances, have no perceptible effect. The same experiment repeated, but with the oxygen driven out of the water by previous boiling, proved that none of these metals had any influence upon the subsequent growth of the bacteria. From this it would appear that such bactericidal activity of zinc as manifests itself is associated with the coincident presence of oxygen. A much more intense bactericidal action is produced when air is permitted to bubble for one hour through water holding the colon bacilli in suspension in the presence of aluminium, zinc, and copper.

With a sufficiency of the pure metal it is thus possible to render the water completely sterile with all three metals, and that when it contains abundant bacteria. In the case of zinc and aluminium the sterilisation process is accompanied by the production of easily recognisable amounts of peroxide of hydrogen and the formation of the hydrates of the two metals. In the case of copper there was, however, no evidence of the presence of hydrogen peroxide. Does the formation of hydrogen peroxide, which is, of course, decidedly germicidal, account for the action of the metals zinc and aluminum? and if so, how is it that copper acts equally well, but apparently without the formation of hydrogen peroxide? It may be that, in the case of copper, hydrogen peroxide is so rapidly dissociated after its formation that tests fail to find it. When, however, boiled distilled water is used in the place of tap-water zinc is found to have a decided germicidal action, and copper and aluminium act slightly. This result would appear to be the direct effect of the metal in solution, although the quantity dissolved must be extremely small. The subject is clearly of sufficient interest and importance to merit further investigation, and it would not be surprising if a key to the germicidal action of metals on bacteria in water is found in the ion. It is quite conceivable, at any rate, and especially with waters containing salts or free carbonic acid gas, that in contact with metal there is some dissociation. Some people assert that beer tastes better when imbibed out of a metal vessel, and if that is the case the liberation of ions might supply an explanation on the ground that they increase the palatability of the beverage. Again, the question naturally arises in considering this subject whether it is possible that our metallic cisterns afford water-consumers any protection against microbic invasion.

PNEUMOCOCCIC PYÆMIA.

IT has been recognised in recent years that acute pneumonia is only one of the lesions which may be produced by the pneumococcus, and that inflammation of other tissues, such as arthritis, peritonitis, meningitis, otitis, pharyngitis, and so on, may result. As the latter are rare and pneumonia by far the commonest lesion it has overshadowed the others. Since pneumococci frequently are present in the blood in pneumonia, and therefore the system generally is infected, it is curious that lesions other than pulmonary are so uncommon. At a meeting of the Société Médicale des Hôpitaux of Paris on Nov. 19th, 1909, M. Letulle and M. Leconte reported a case of pneumonia in which pneumococcic lesions of extraordinary multiplicity were produced. A chauffeur, aged 41 years, was admitted into hospital on June 21st, 1909, for pneumonia which had commenced on the previous day with a severe rigor and pain in the side. He had been long addicted to alcohol, and the colour of his face and tremor of the hands and tongue and excitement showed recent indulgence. There was right apical pneumonia, the temperature was 104° F., and the urine contained a little albumin. He became more excited and constantly endeavoured to get up, so that he had to be fastened to the bed. On the 25th he was calmer and the temperature had fallen to 101·5°, but although resolution was proceeding in the right lung signs of consolidation were found at the left base. On the 26th the temperature was 102·2°, and the patient complained of pain in his left ankle, which was swollen, slightly red, and tender. On the 27th the temperature was 104° and the joint was more swollen and painful; the swelling was periarticular as well as articular and extended up the leg, especially along the peronei muscles. Fluctuation was obtained behind the external malleolus. In consequence of these signs of suppuration an incision was made along the malleolus, causing the escape of much thick greenish pus. On the 28th the temperature fell to 102·2°. On the 29th there was found on the back, especially on the left side and at the lower part of the thorax, a large number of abscesses, of which some resembled the pustules of varicella, and others, a little larger, took the form of bullæ with seropurulent contents. From June 30th to July 12th a considerable number of these abscesses appeared in succession. The smaller ones rapidly dried up. The larger ones were opened and healed in two or three days. By the confluence of some of these a few large abscesses were formed; the largest, on the left shoulder, was 10 centimetres long. All the abscesses yielded the same kind of pus as that obtained from the ankle. After healing each abscess left a pigmented spot, of which 140 were counted, a figure lower than the total number of abscesses, because the smaller ones left no trace. During this period the general condition of the patient was, in spite of all this suppuration, fairly satisfactory. The temperature ranged from 100·4° to 101·2°. On July 9th the patient complained of slight difficulty in swallowing and the thyroid gland was found to be swollen and tender. An abscess developed in the left lobe and was opened on the 14th. After this convalescence proceeded without incident and the patient was discharged on August 16th with his left ankle-joint a little swollen and its movements impaired and painful. All the abscesses were proved to contain the pneumococcus in pure culture both by direct examination and by inoculation of mice. The recovery of the patient, in spite of double pneumonia, extensive suppuration, and alcoholic habits, is noteworthy. A case comparable to this has been recorded by an American writer, Shattuck, in which recovery took place after double pneumonia, jaundice, suppurative arthritis of the shoulder, double parotitis, and finally arthritis of the knee. Pneumococcic arthritis is a very rare complication of pneumonia. In reporting in our columns the first case observed in this country, Dr. E. J. Cave could find recorded by continental observers only 30 cases.[1] But cases of arthritis after pneumonia in the pre-bacteriological period are scattered through the medical periodicals. In 1902 Dr. Nathan Raw stated that pneumococcic arthritis was not so rare as was supposed, and published 7 cases which he had observed among 887 cases of pneumonia admitted to the Mill Road Infirmary, Liverpool.

MATHEMATICS AND MEDICINE.

THAT the Liverpool School of Tropical Medicine is in need of skilled statistical assistance may be gathered from a letter by Professor Ronald Ross, C.B., which appeared recently in the *Liverpool Courier*. In that letter he writes: "It may astonish some of your readers to learn that mathematics is required for tropical medicine, but I may say that this is most certainly the case. ..... Statistics have to be correctly examined, measurements exactly checked, and so on. In fact, pathology is now rapidly rising from a qualitative to a quantitative level. We could easily do with a trained mathematician to assist in the work of this school alone." The public spirit of Liverpool in matters of education is proverbial; it has abundantly been shown by the generosity with which the establishment and equipment of its University and its School of Tropical Medicine have been provided for, and we doubt not that eventually Professor Ross's appeal will meet with a satisfactory response. The question arises, however, whether the course now proposed is the best that can be devised in the circumstances. There is no doubt that medical science has already profited greatly by the application of statistical methods to the elucidation of the various problems of biology and

[1] THE LANCET, Jan. 12th, 1901, p. 82.

pathology. From Professor Ross's letter it would appear that he desires the appointment of a pure mathematician for his present purpose; but from what we know of similar arrangements elsewhere, we suggest that the assistance now asked for would be best secured by the appointment of a trained statistician, familiar with the medical points where figures are of the first elucidatory value, and familiar with the details of biological and pathological research. Such statistical problems as the local estimation of populations in intercensal years may safely be entrusted to persons without medical training, but no one who is not thoroughly versed in medical science generally could safely deal statistically with such matters as, for example, the distribution of disease or the mortality of occupations. It is in the department of State Medicine more particularly that the advantages of statistical treatment are demonstrable. The labours in this field of Farr, Rumsey, Parkes, and Hayward in this country, and of Bertillon and others abroad, have already borne good fruit, and at the present moment a thorough acquaintance with the principles and applications of vital statistics is regarded as an essential qualification for official appointment in our public health medical service. For the solution of nine-tenths of the ordinary problems all that is required is a sound knowledge of elementary algebra and geometry, such, for example, as that which is prescribed for graduation in the honour science schools of the University of London, and it is not unreasonable to demand the possession of that knowledge in all applicants for such a post as that which Professor Ross desires to establish in Liverpool. For the investigation of problems depending on the laws of probability, the theory of errors, and so on, familiarity with the higher mathematics is, of course, indispensable, but there is little doubt that even this knowledge will be forthcoming among the more studious members of our profession when the demand for such knowledge has been established.

OXALIC ACID IN FOODS.

FOR a long time it has been known that oxalic acid or oxalates were a normal constituent of many vegetable foods and some observers have found relatively small quantities in animal foods. There was a silly fear some years ago that tomatoes were poisonous, and suspicion was entertained that their consumption led somehow and vaguely to cancer, the suspicion seeming to receive support from the fact that they were found to contain oxalic acid. If the various foods which analysis has shown to contain oxalic acid or oxalates are to be banished from our dietary, then the following must go, while their use in the daily diet might be made to account just as scientifically for cancer as the use of tomatoes: cocoa, tea, pepper, spinach, rhubarb, gooseberries, bread, plums, figs, chocolate, chicory, potatoes, beet-root, beans, coffee, strawberries, carrots, cabbages, and celery. Rhubarb has been recently said to contain free oxalic acid in alarming quantities, and the public has been seriously advised to eschew this undoubtedly excellent and dietetically useful acid stalk. It is true to say that rhubarb contains oxalic acid, but cocoa contains twice as much, spinach half as much again, and tea and pepper a good deal more. If rhubarb is poisonous because of its oxalic acid, then tea and cocoa should be, weight for weight, considered more poisonous. Rhubarb contains 0·24 per cent. of oxalic acid, spinach 0·32 per cent., pepper 0·32 per cent., tea 0·37 per cent., and cocoa 0·45 per cent. Oxalic acid is, of course, poisonous, but statistics appear to show that the lethal dose averages about half an ounce, assuming that no prompt administration of remedies had been made. According to this the fatal dose of oxalic acid in rhubarb would be represented in about 12 pounds of the stalk, which, of course, is an impossible quantity for anyone to consume at a single sitting. But a large proportion of the oxalic acid exists, not only as such, but in the form of oxalate of lime, which is harmless, lime being used as an antidote in oxalic acid poisoning. The oxalic acid in cocoa exists almost entirely as oxalate of lime, and therefore its presence may be ignored on the score of harmfulness. Further, the oxalates are changed into innocuous compounds in the metabolic processes, about 80 cent. of the intake disappearing in this way. There are, it must be admitted, special cases in which care should be taken to exclude a diet which contains a constituent known to aggravate certain conditions. Rhubarb is therefore properly excluded from the diet of certain individuals, just as sugar is forbidden to those for whom the physician knows it is harmful. On the whole, however, the generality of persons is not likely to suffer any harm from the oxalic series contained in so many very familiar and widely used articles of food.

EPIDEMIC DROPSY IN CALCUTTA.

A SOMEWHAT mysterious malady has been epidemic in Calcutta, particularly during the last four months of 1909, diagnosed by some as a modified form of beri-beri and by others as "epidemic dropsy." The disease is not new to the city, for similar outbreaks occurred in 1878, 1879, 1901, and 1907. Dr. T. Frederick Pearse, the medical officer of health of Calcutta, has recently issued a report on the epidemic malady, discussing its incidence and probable nature. It appears that cases have been found in nearly every part of the city, and that all classes and castes, rich and poor, weak and robust, have been attacked. There have been more fatal cases among women than men, but infants and young children seem to have escaped. Hindus suffered in a larger proportion than Mahomedans. The precise number of persons attacked has not been ascertained, but it is believed to have been great. The total deaths certified in 1909 from the current epidemic disease were 433. In the previous outbreaks the case mortality rate was under 3 per cent. As regards causation, Dr. Pearse discusses two theories in his report: (1) that it is a food disease caused by the ingestion either of some adulterant or of some poison which has developed in the food; or (2) that it is an acute specific disease spread by infection directly from one human being to another. The popular notion in Calcutta was that the malady was due to some adulteration of mustard oil, which is a constant article of diet among the people. Careful inquiry and testing of some 200 samples of this oil gave, however, no support to this view. From the description given of the disease we are inclined to agree with Dr. Pearse that it is not beri-beri. Probably it is the ailment designated by Manson in his "Tropical Diseases" as epidemic dropsy, and described by him as a specific, epidemic, communicable disease, running its course in from three to six weeks, and characterised by the sudden appearance of anasarca, preceded in most instances by fever, vomiting, diarrhœa, or by irritation of the skin, and often accompanied by a rash, by fever of a mild remitting type, by disorder of the bowels, and by pronounced anæmia. Dr. Pearse, from his own observations, gives the incubation period as about three days. During the last few years the occurrence of epidemic dropsy, epidemic œdema, or angio-neurotic œdema has been reported in certain districts of India, and various causes have been assigned for the appearance of the disease. One observer blamed the bites of "a peculiar kind of mosquito," while another insisted that the bed bug acted as the transmitter of the malady. We regret to find from his report that Dr. Pearse has been submitted to what appears to us to have

been harsh and unfair criticism for his alleged want of activity in investigating the origin of the epidemic and for failing to institute rigorous measures for stopping its spread. Dr. Pearse, in defence, says that while fully realising the seriousness of the outbreak, and while applying such measures as appeared necessary, including disinfection, he found it impossible to impose vexatious restrictions, which would cost a good deal of money and cause a considerable amount of inconvenience to the inhabitants of the city, until more was definitely known of the nature of the malady, and until further investigation by suitably qualified scientific workers had been undertaken. With his own numerous and pressing duties to attend to, it was obviously impossible for him to institute a research on the subject, nor could he entrust it to any of his assistants, however competent they might be, unless the corporation provided and paid for duly skilled substitutes to do the routine work of the department; with their own daily duties to perform the members of Dr. Pearse's staff had no time in which to engage in independent original investigation. It is, in our opinion, most unfair that a highly competent and hard-working officer like Dr. Pearse should be subjected to such unjust and discouraging criticisms by irresponsible persons unacquainted with the difficulties of the subject. Happily, the Indian Government has come to the rescue; recognising the need for a comprehensive inquiry by a suitable expert into the prevalence of "epidemic dropsy," it has directed Captain E. D. W. Greig, I.M.S., to carry out a special investigation into the nature and causation of the disease.

PRACTICE BY BRITISH MEDICAL MEN ABROAD.

THE General Medical Council has issued a useful report on "The Conditions under which Medical and Dental Practitioners Registered or Legally Qualified in their own Country may Practise Abroad,"[1] and as we are frequently asked for information upon the subject supplementary to that which we publish annually in our Students' Number, we are glad to bring it to the notice of our readers. The report is based upon answers to the following questions received from His Majesty's representatives and foreign governmental officials in 121 British Dominions and foreign countries: 1. What foreign qualifications entitle to practise legally, without passing any examination in your country or state? 2. What advantages (if any) are given to practitioners already registered, or entitled to be registered, in Great Britain? 3. (*a*) If no foreign qualifications are recognised, in what subjects must an examination be passed by a person who already possesses a qualification from a reputable foreign University body? (*b*) Can a foreigner be examined in his own language? 4. What documents must be produced by a person desirous of practising? 5. (*a*) What is the fee to be paid for the right to practise? (*b*) Has an annual fee to be paid and, if so, what is the amount? 6. To whom should application be made for further information and forms? Answers are also given to a similar set of questions sent out with regard to dental practice in the same countries and states. In the great majority of cases the answer to the first two questions is simply "None," although in some instances this reply is qualified. In Italy, for instance, we find that properly qualified foreign practitioners may practise amongst foreigners but not amongst natives without obtaining an Italian qualification. As is generally known, in most of the British dependencies and colonies the possession of a registrable British qualification confers a right to practise, but in some—e.g., in the Province of Ontario—this grace is not granted and a State examination has to be passed. In the preface to the report the warning is given that, as requirements are very liable to change, it will in every case be advisable for an intending emigrant before leaving home to write to the indicated local official for the details and necessary forms, so that there may be no trouble or disappointment on arrival abroad. We may add to this warning that it is always as well to obtain first-hand information as to the prospects of practice in any foreign place before giving up a certain living at home to proceed thither. The medical profession should be grateful to the General Medical Council for ordering this publication and to its compilers for the pains they have taken in producing it.

[1] London: Spottiswoode and Co., pp. 84, 1*s*. net.

ALCOHOLIC BEVERAGES IN THE FAR EAST.

ATTENTION has been called to the increase in the consumption of alcohol in recent years amongst the Chinese in the Straits Settlements, following, it is alleged, the more stringent regulations imposed upon the opium traffic; and in view of the recent introduction of crude European spirit into those parts, it may therefore be of interest to review briefly the main varieties of native alcoholic beverages ordinarily consumed. Of these, probably the most familiar are "arrack" and "saké," "samshu" and "hocshu." "Arrack" is an ardent spirit procured from "toddy," the fermented juice of the "coco" and other palms, from rice, or from "jaggery," a coarse, dark-coloured sugar obtained from the sap of the "jaggery palm." It is made all over the Malay Archipelago, varies greatly in strength, tastes like sour beer, and is distinctly heady. It is the usual drink of "coolies." "Saké" is the national beverage of Japan. It has a peculiar flavour not comparable to any European drink, is made from fermented rice by an intricate process in winter time, and contains from 11 to 14 per cent. of alcohol. It is a necessary constituent of every ceremonial Japanese dinner, is served hot in little ampulla-like jars, and drunk with much formality from squat earless saké-cups containing approximately about 2 ounces. To the European palate it tastes sour at first, but a preference for it is readily acquired. Curiously enough, it has a much more powerful effect on the Japanese than on Europeans. A stronger variety, "shochu," contains from 20 to 50 per cent. of alcohol. Another form, "mirin," is more or less like a liqueur. The Chinese have two alcoholic drinks, "samshu" and "hocshu." "Samshu" is simply another name for "arrack," but "hocshu" is a much more aristocratic drink. We cannot describe it better than in the words of that inimitable old buccaneer, Dampier[1]: "This is a strong liquor, made of wheat, as I have been told. It looks like 'mum' (a peculiar kind of beer made from wheat malt) and tastes much like it, and is very pleasant and hearty. Our seamen love it mightily, and will lick their lips with it, for scarce a ship goes to China but the men come home fat with soaking the liquor, and bring stores of jars of it home with them." It is put up in small squat white jars, sealed with a wooden plug, covered with a thick mass of prepared clay extending half way down the neck. Connoisseurs are very careful to examine this plug, as the slightest crack allows the liquor to become sour. In recent years, however, European alcoholic beverages have been gradually superseding the native brews, and a very excellent lager beer, "Kirin," is now manufactured and much used in Japan. The Oriental, however, is an extremely abstemious person on the whole, and the native liquors do not lend themselves to debauchery. Unfortunately in recent years regularly increasing quantities of crude European "whiskies" and "brandies" are being shipped to Far Eastern ports, and though intended originally, no doubt, for the consumption of the European sailor, they are now increasingly used by the ubiquitous Chinese. There is

[1] Dampier's Voyages, fourth edition, vol. i., pp. 419–420.

no tax on alcohol in the Straits Settlements, and, as a consequence, these spirits are exceedingly cheap, so much so that one peculiarly virulent brand of "Fine Old Scotch Whisky," with the figure of a Highlander in full dress, and the motto, "Made in Germany," on the label, can be procured for 1*s.* a large bottle in Penang and Singapore. We do not know what it is that these bottles contain, but of their danger to health there can be no doubt. Even on the seasoned European sailor they have a most paralysing effect, men lying comatose sometimes for 36 hours after a debauch, giving colour to the idea that they have been "Shanghaied"; and on the more abstemious Oriental the results are even more pronounced. According to the account of Dr. W. G. Ellis, embodied in the "Straits Settlements Reports for 1908," alcoholic insanity of an "acute maniacal type" is not an infrequent sequela of such debauches amongst the Chinese. The symptoms are not those of fear, nocturnal hallucinations, or the ordinary well-known signs of delirium tremens, but rather tend towards grandiose delusions and fixed ideas of persecution. Recovery, moreover, is often delayed till from six weeks to two months after the primary attack. To the taste these crude spirits are exceedingly disagreeable, and were it not for the absence of excise duties they would probably therefore be unsaleable. It seems obvious, then, that in the interests of public health preventive measures should be devised against the habit; for though the Oriental is never likely to fall a victim to "fire-water" as the unseasoned Red Indian did, yet he is not by any means as case-hardened to alcohol as the average European. On the other hand, if stoppage of his opium, as Dr. Ellis suggests, drives him to seek unconsciousness in cheap alcohol, it will behove us to move cautiously lest in ridding him of one evil we leave him exposed to another undoubtedly greater.

MARCH AT HOME AND ABROAD.

THE weather of March of this year differed entirely from that of March, 1909, when it was cold, with much rain, sleet, and snow, and very little sunshine. The month which has just closed, on the contrary, was very dry, the total rainfall being much below the average in almost every part of the kingdom. Over the greater part of England it was less than 50 per cent. of the normal; one of the driest spots was Liverpool, where the percentage was only 37. Wet days were very rare; several days early in the month, some about the middle, and nearly all after the 19th were quite rainless. The mean temperature of the month was a little above the average, although there were scarcely any really warm afternoons such as sometimes occur to give a foretaste of early summer even during a much colder March. In the important matter of sunshine it was most generous, the excess on the average being very large. In London the total number of hours was 110, which is slightly more than an hour per day in excess of the figure allowed by an average March, while at Manchester, a city which never fails to take full advantage of any dull weather in its vicinity, the number of hours was only 16 less than in London. At several of the resorts on the south coast the figure amounted to nearly 200 hours, or more than six hours per day. Generally fine weather was also the rule on the Continent, and the temperature at the southern resorts showed the effect of the increasing altitude of the sun. At the Nice observatory the thermometer was about equal to that which may be expected in London at the beginning of May, and that at Lisbon was almost identical to the average for May at Ventnor. At Malta and Algiers, the warmest places represented in the table, the mean minimum temperature of the nights was as high as that usually experienced in June and July over the greater portion of England north of the Thames valley. The afternoons in such places as Malta, Rome, Palermo, Palma, and Lisbon were about as warm as the average afternoon in the south of England during May. The Scilly Islands enjoyed a higher night temperature than Biarritz and several other places in southern Europe, while the mean diurnal range of temperature was only 7 degrees. London differed little from Paris in its mean temperature, but its days were rather colder and its nights milder. Berlin was not at all cold for the time of year, but colder than any part of England except the elevated resort of Buxton. At Berlin the sheltered thermometer fell to freezing point or below it on 15 nights, at Paris on 13, and in London on 8.

—	Highest temperature.	Lowest temperature.	Mean maximum temperature.	Mean minimum temperature.	Mean temperature for month.	Mean range of temperature.	Number of days with rain.	Total fall in month.
	°	°	°	°	°	°	*	ins.
Scilly	55	39	52	45	48·2	7	10	0·93
Jersey	60	31	51	40	45·4	11	5	2·25
Torquay	59	31	52	40	45·9	12	6	0·86
Sandown, Isle of Wight	57	33	51	39	44·9	12	4	1·59
Weymouth	58	32	51	39	45·2	12	5	1·03
Bournemouth	59	28	51	37	44·1	14	6	0·64
Brighton	59	31	50	38	43·9	12	7	1·39
Bath	58	25	52	35	43·5	17	6	0·85
Buxton	57	23	47	34	40·6	13	10	1·22
Harrogate	56	29	49	35	42·2	14	7	0·59
Manchester	59	30	50	37	43·6	13	6	0·99
Nottingham	58	29	51	35	42·8	16	3	0·60
London (Westminster)	57	30	51	36	43·6	15	3	0·88
Paris	64	29	53	34	43·9	19	5	0·72
Berlin	59	28	48	33	40·6	15	7	0·44
Brussels	60	27	51	35	42·8	16	8	1·69
Nice Observatory ...	66	36	57	42	49·7	15	6	2·45
Biarritz	72	32	57	44	50·3	13	7	1·89
Florence	67	33	59	42	50·1	17	2	0·47
Rome	63	36	60	43	51·5	17	4	0·40
Naples	63	40	57	47	51·7	10	7	2·76
Palermo	70	39	62	44	52·9	18	8	1·63
Malta	67	42	60	50	54·9	10	7	1·42
Palma (Majorca) ...	66	41	62	46	53·7	16	6	1·19
Algiers	72	41	63	51	57·0	12	9	3·16
Lisbon	68	45	60	47	53·4	13	9	1·79

* Days with at least 0·04 inch.

PURPURA HÆMORRHAGICA DUE TO BENZOL POISONING.

L. Selling[1] of Baltimore reports three cases of purpura, two of them fatal, in girls employed as factory hands in a process which involved handling and inhalation of commercial benzol. An examination of the remaining 20 persons working in the same room discovered purpuric spots in four. In the two fatal cases hæmorrhages occurred under the skin and mucous membranes, varying in extent, but reaching considerable proportions. Examination of the blood disclosed a great fall in the number of red blood corpuscles, together with an absence of regenerative forms, a scantiness of platelets, a relative increase in mononuclear types of leucocyte, and a general leucopenia. The bone marrow was very poor in cells and there was no evidence of a hyperplastic reaction. A similar series of cases was reported by Santesson[2] from a Stockholm

[1] Johns Hopkins Hospital Bulletin, February, 1910.
[2] Archiv für Hygiene, xxi., p. 336.

manufactory of bicycle tyres where benzol was used as a solvent of rubber. By means of experiments in animals he proved that purpura could result from the continued absorption of benzol; and he was able to trace these effects to the principal constituent of commercial benzol—namely, benzene. Selling also arrived at the conclusion that benzene was the toxic agent in his cases, and although he could not produce purpura by injection of benzol into animals, he was able to bring about changes in the blood and bone marrow which were strikingly similar to those observed in his fatal cases. He concludes, therefore, that the cases he has reported were due to the action of benzol, or rather to the benzene of which benzol is largely composed.

A TELEGRAM from the Governor of Mauritius to the Secretary of State for the Colonies, received at the Colonial Office on April 1st, reported 2 cases of plague with 1 death during the week ending March 31st.

Dr. F. W. Mott will deliver the Oliver-Sharpey lectures at the Royal College of Physicians of London on April 22nd and 29th at 5 o'clock. He will take for his subject, "The Cerebro-spinal Fluid."

THE LIFE ASSURANCE OF WOMEN.

BY R. HINGSTON FOX, M.D. BRUX., M.R.C.P. LOND.,
PHYSICIAN TO THE FRIENDS PROVIDENT INSTITUTION.

A DISCUSSION on the Mortality of Female Assured Lives at the Institute of Actuaries in London on Dec. 20th last, introduced by Mr. C. W. Kenchington, F.I.A., of the Prudential Assurance Company, affords an opportunity of reviewing the question of the life assurance of women. It has become more frequent during the past 20 or 30 years for women to insure their lives. This is one effect of the changes which are taking place in our time in the development and occupations of the female sex. There can be no doubt that these changes are of a far-reaching nature. The census of 1901 revealed some of them, showing that 34·5 per cent. of all females over 15 years of age were engaged in some occupation; and as compared with the previous census nearly 50,000 women had to be transferred, it is stated, from the class of teachers to that of clerks.

Mr. Kenchington quoted on the medical aspect of the question papers by the present writer and by Dr. A. L. Galabin read before the Life Assurance Medical Officers' Association in 1898 and 1906 respectively.[1] We may first inquire, Has the mortality curve for female life altered in recent years? Down to the year 1890 this curve showed in England and Wales a generally lower range than that for male life, especially in infancy and after the age of 40 years. Between these periods there was to be noted in childhood and adolescence a slight excess over the male rate, due to the earlier onset of phthisis in girls than in boys. Further, during the child-bearing age the mortality nearly equalled that of men, since the deaths due to disorders connected with childbirth almost counterbalanced during this period the greater liability of males to death from violence and from disorders due to exposure and alcoholism. The mortality of childbirth, it may be noted in passing, was carefully investigated by Dr. Matthews Duncan[2] from various data, and conclusions were drawn from his tables that the average risk of death to the mother was about 1 in 200 births, whilst the risk in first labours was about 1 in 100. Mr. T. A. Coghlan in 1898[3] arrived at closely similar conclusions upon a wide basis of statistics in New South Wales. Mr. Kenchington has compiled a valuable table from the Registrar-General's returns, in which he has estimated the deaths resulting from all puerperal causes per 1000 live births. From this it appears that the rate which in 1881–85 was 4·94 per 1000 had diminished in 1906–07 to 3·93 per 1000. The "accidents of childbirth" (abortion, puerperal mania and convulsions, placenta prævia, &c.) had varied little, but great reduction (2·87 to 1·68) had taken place in "puerperal septic diseases." The risk from childbirth is therefore a diminishing one.

The principal changes in the death-rate of women during the past 18 years may be thus summed up: Firstly, the decline in the total death-rate from all causes has affected women more than men; secondly, the decrease in the mortality from tuberculous disease has been more considerable in the female sex; thirdly, improved hygiene and therapeutics have diminished the risks of childbirth; and fourthly, the apparent increase of cancer has had a somewhat adverse effect on female mortality, especially in the fifth and sixth decades of life, for it must be remembered that the liability to this disease begins about ten years earlier in women than in men, and that certain organs which belong to the female sex are especially prone to be attacked.

It results from these changes that the female death-rate throughout the whole of life has fallen, and that it has also fallen relatively to that of males. The more favourable range of mortality for the female sex which previously existed is therefore accentuated, although the curve still shows a very slight excess over the male rate in the period from 5 to 15 years of age.

If assured female lives were a fair sample of the population, it is plain from what has been said that these lives might be taken at slightly lower rates than those of men. But it is not so. Whilst men insure their lives almost as a matter of course, only a few women do so, although the number is increasing. The class of female assurers in the past has included many on whose lives policies were taken out on account of property or loans, not always a good class of life; whilst in some other cases the motive of weak health has operated, or in some way there has been a selection against the office. The "insurable interest" is often less clear than with men. "Medical selection" is, moreover, less effective than in the case of men, probably on account of the examination being less thorough, and perhaps also that women "more readily conceal material facts." A study of the female mortality during the earlier years after assurance has convinced Mr. Kenchington that the benefit of selection is for all practical purposes limited to the first five years after entry. In the case of men it lasts for a longer period. It has thus come to pass that the mortality of assured women has exceeded that of assured men up to about the age of 45 years. After that age it presents the more favourable range which is observed in the community at large. Most insurance offices therefore charge an extra premium on female lives.

The combined returns of the British assurance companies come down only to the year 1893. The changes which have since occurred in female assurance must be gleaned from data on a smaller scale. The number of female entrants was only 7·33 per cent. of the total in the experience of the 60 British offices (1863–1893). In Mr. Kenchington's large office it averaged during 1908 about 28 per cent. In another office the percentage was said by a speaker to have increased from 10 to 16. Not only have the numbers increased, but the conditions have changed. Of those women who formerly assured it is believed most were married. The present writer found that of 200 women entering in 1896–97 111 were spinsters. Mr. Kenchington reports that in 1908, of 1506 women women assuring 954 were spinsters. These figures accord with the experience of medical examiners to-day, before whom are coming many single women who are earning their living, and who generally take out endowment assurance policies. They are a good class of lives. Dr. Galabin in 1906 discussed the question how they can be equitably dealt with, for it is not quite reasonable that they should be mulcted for the special risks of their married sisters. It was suggested at the meeting on Dec. 20th that the extra rate for women should be imposed only on the married, and upon the marriage of those who had insured as spinsters. This would not be easy in practice and the rate must, of course, be larger than if applicable, as it usually is at present, to all women insurers. It is a pity that the collected experience of the offices does not distinguish between married and unmarried women. Amongst other points brought out by Mr. Kenchington was that of a

[1] R. Hingston Fox: On Female Lives, Transactions of the Life Assurance Medical Officers' Association, 1898–99, p. 49. Galabin: The Relative Mortality of Females, &c., Id., 1906–07, p. 21.
[2] Fecundity, Fertility, Sterility, 1866.
[3] Proceedings of the Royal Statistical Society.

"phenomenally heavy" mortality up to the age of 39 years of women insured under joint-life policies; this is ascribed to the child-bearing risk. Another point was the very favourable rate of mortality shown by female teachers, belonging to the Elementary School Teachers' Deferred Annuity Fund, during the period 1899–1906.

The defective character of the medical examination of women for insurance purposes has been felt strongly in America, where frauds in these cases appear to have been frequent,[4] and in view of the special risks connected with the child-bearing organs a routine examination of these organs has been advocated, but it may safely be said that this would not be tolerated by female insurers in England. Mr. Kenchington is inclined to dispense with medical examination for women, but this is surely a hazardous procedure, especially when it is remembered that women who seek insurance are a select class and not the bulk of the middle and upper class community as with men. Medical examination is already dispensed with for the double endowment assurance, and this form of policy has become increasingly popular amongst women of late years. Full particulars are given in the paper alluded to of the present practice of the offices in the matter of charging extras on female lives. From these it appears that the number of offices which take such lives without any extra rating has increased, and that amongst those which still impose such a rating the single extra premium has found more and more favour. Mr. Kenchington advocates a diminishing debt upon the policy, and there is no doubt that this form of rating scientifically meets the extra risk, since it bears most heavily on the early years when that risk is chiefly present. It may be useful in some cases, but would be declined by many proposers, for the true equivalent of even a small rating looks formidable in this shape. The method of making only a small proportion of the sum assured payable in the event of death occurring within the first year after entry is on a similar principle, and neither plan meets the needs of those who insure in connexion with financial risks.

Taking into account the increasing number of women assurers, so that they form a less restricted class, and the improved mortality returns, I think that they might now be taken on the same terms as men, excepting only that some provision should be made for the risk attending childbirth. The best provision is a single extra of 15*s.* or £1 per cent. payable by married women entering under the age of 40 years, and upon the marriage of those who entered in the single state. This should not be varied in special cases, favourable or unfavourable, which would average one another.

ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.

I.

IN a leading article in THE LANCET of Jan. 29th we dealt with some interesting statistical considerations relative to the death-rate and infantile mortality of certain groups of towns, and we propose now to touch upon other matters of which the report in question treats.

Exotic Diseases.

With reference to exotic diseases, concerning which the usual summary is furnished by Dr. R. Bruce Low, it appears that while the actual diffusion of plague showed no signs of abating, there were hopeful indications that in India the mortality from the disease was on the decrease. But as regards cholera in India there was during 1908 a considerable increase on the number of deaths recorded in 1907 and no less than 600,000 natives died from it.

In connexion with this question of exotic diseases, it is of interest to turn to a summary furnished by Dr. Theodore Thomson with reference to the coast sanitary survey of England and Wales which was carried out by certain of the medical inspectors in 1907–08. As regards each port visited, the quality of general administration, the extent to which vessels were inspected, the hospital provision, and the presence or absence of a disinfecting apparatus are tersely indicated, and it must be said that in reference to the first two points the words "bad" and "none" occur with undesirable frequency, while as to facilities for effectual disinfection 52 districts had no satisfactory provision—a fact which bears hard upon the medical officers of health and inspectors of nuisances at those ports, as well as upon the masters of vessels.

Water-supplies.

Certain of the reports which have already been reviewed in the columns of THE LANCET are reprinted in the volume before us, and amongst these may be mentioned the report of Dr. Theodore Thomson and Mr. P. M. Crosthwaite on the conditions threatening the purity of the Cambridge water-supply. This report is of great interest, and it is well that it has been included in the annual volume, where it will be available for reference purposes. This question of the safety of chalk waters generally is, we are glad to see, engaging the attention of the medical department of the Board, as the extensive area of uncovered chalk in certain parts of the country and the large population supplied from wells in this formation render careful scrutiny of such supplies necessary, more especially when regard is paid to the manner in which building is extending over chalk areas where the chalk is not protected from pollution by any of the impassable Tertiary formations.

Attention is also being directed by the medical department to another important but often overlooked aspect of water-supplies, and that is their plumbo-solvency. From 1900 to 1902 Dr. A. C. Houston made some valuable investigations for the Local Government Board with respect to the action of moorland waters upon lead, and since these investigations increasing efforts have been made in many places to neutralise the acidity of peaty waters possessing plumbo-solvent power, while some authorities have endeavoured to enforce the substitution of iron for lead service pipes. But it has not, so far, been found practicable to prohibit the employment of lead pipes for the conveyance of soft water, and, moreover, substitutes such as glass-lined pipes and the like have not proved altogether satisfactory. As regards the effects still produced by peaty waters on the health of certain populations consuming them, it appears that although the cruder consequences such as wrist-drop, kidney disease, and abortion are less prevalent than heretofore, there are still being produced in some districts conditions such as lassitude, anæmia, and inability to work from the frequent ingestion of minute doses of lead, and it is clear that a not inconsiderable amount of lead-poisoning still escapes notice. A good example of oversight in this sense is furnished by Dr. A. Newsholme in his current report. The medical officer of health of the Rhondda urban district, which obtains its water from the Pontypridd supply, suspected that such water was causing lead-poisoning in the district, and consequently he inquired of all the medical practitioners whether any cases of lead-poisoning had come to their notice. As a result 29 negative replies were received. In the following year similar inquiries were made, the observation being added that several recent cases of lead-poisoning were apparently ascribable to the water-supply. This time 23 replies were received, which elicited the fact that 35 cases of lead-poisoning were under treatment. These circumstances point to the conclusion either that formerly cases of lead-poisoning were overlooked, or that the Pontypridd water is sometimes acid and sometimes neutral, according as to whether or not certain peaty "feeders" are flowing or dry. But the facts suggest, as Dr. Newsholme observes, that medical officers of health should draw the attention of medical practitioners to any public water-supply which may possess plumbo-solvent power, and the further question arises whether lead-poisoning due to the consumption of water should not be made notifiable.

Vaccination.

The rapid increase which is occurring all over the country in the number of unvaccinated children renders it not improbable that on the reappearance of small-pox in epidemic form there will take place what has been described as "panic vaccination"—that is to say, the public vaccinators will be literally besieged by persons who desire to be forthwith protected against the disease, with the result that their supply of lymph will be quite insufficient to meet the demand. In order to make provision for abnormal demands

[4] Dr. C. Lyman Greene, Medical Examiner for Life Insurance, second edition, 1905, p. 112.

it is necessary that the Government lymph laboratory shall possess such a store of lymph as to enable it to cope with an emergency, and with this view Dr. F. R. Blaxall and Mr. H. S. Fremlin have been carrying out investigations as to the effect of cold storage upon vaccine lymph. Fortunately, the results of their experiments seem to show that lymph can be exposed to a temperature of below freezing point for six months and then yield on vaccination a case success of 99·6 per cent. and an insertion success of 96·7 per cent.

Carrier Cases of Enteric Fever.

Dr. Theodore Thomson and Dr. J. C. G. Ledingham contribute to the report a memorandum as to the progress of their inquiries into the occurrence of carrier cases of enteric fever. With respect to the excretion of bacilli by persons who have recovered recently from the disease a number of persons are being kept under observation, but the information so far acquired is insufficient to justify inferences. As to the influence of carrier cases in causation of enteric fever, investigations have been made into nine outbreaks where the circumstances suggested the possible operation of a carrier. In five of such outbreaks no carrier was discovered, but this fact by no means proves that a carrier was not operative, inasmuch as the examination of the stools and urine of suspected persons may have coincided with an intermission of excretion of the bacillus typhosus by them. In the case of two of the remaining outbreaks, the events could not be ascribed to a carrier, but among the persons attacked there were two in one outbreak and one in the other who, after recovery, continued to excrete the specific bacilli. One case discharged from hospital on Nov. 21st, 1908, yielded bacilli on Jan. 11th, 1909, while another case whose temperature was normal by August 24th, 1908, yielded bacillus typhosus in her stools on Dec. 8th, 1908.

The treatment of carrier cases under the Board's supervision has so far been confined to the employment of vaccines and the administration of milk soured by lactic acid bacilli, but hitherto all attempts to limit discharge of bacteria either by urine or fæces have failed, and thus support is lent to the provisional statement, "once a carrier, always a carrier."

BRITISH MEDICAL BENEVOLENT FUND.

AT the March meeting of the committee 27 cases were considered and grants amounting to £253 voted to 23 of the applicants. Appended is an abstract of the cases relieved.

Widow, aged 48 years, of M.B. Durh. Endeavours to support herself by taking boarders, but has not been successful so far. Two children, aged 18 and 16 years, the latter at Epsom College. Relieved twice, £24. Voted £10.

M.D. Cantab., M.R.C.P., aged 72 years. Quite incapacitated by paralysis and dependent on a small weekly allowance from a son and 3s. a week as old age pension. Voted £12.

Daughter, aged 67 years, of late M.R.C.S., L.S.A. Lost part of the provision made by father through the failure of a bank, and the rest in the endeavour to establish a boarding house. Voted £12.

M.R.C.S., aged 65 years. Retired about ten years ago owing to ill-health, but lost all his savings through unfortunate investments, and now endeavours to support himself by taking lodgers. Voted £12.

Daughter, aged 52 years, of late M.D. Edin. Has a small weekly pension, but is incapacitated by serious illness and is unable to meet unavoidable expenses. Voted £10.

Wife, aged 36 years, of M.R.C.S., L.R.C.P., who for 18 months has been confined to a county lunatic asylum. No income; lets lodgings. Three children, aged 13 to 4 years. Relieved once, £5. Voted £10.

Widow, aged 61 years, of L.R.C.S., L.R.C.P. Irel. Provision made by husband lost through the failure of a bank, and applicant having bad health is now dependent on a sister obliged to earn her living as a companion. Relieved three times, £36. Voted £12.

Daughter, aged 55 years, of late L.R.C.P. Edin. Used to be a dressmaker and endeavoured to start on her own account but was unsuccessful and lost her savings. Receives a few shillings a week from a friend and earns a little occasionally by needlework. Health indifferent. Relieved five times, £46. Voted £6.

Widow, aged 65 years, of M.B., C.M. Glasgow. Is in very feeble health and practically dependent on the help given by this Fund and another charity. Only son is a signalman earning small wages. Relieved ten times, £114. Voted £10.

Widow, aged 86 years, of M.R.C.S., L.S.A. Only income a pension of £25 per annum from the United Kingdom Beneficent Association. Children only able to help with a few shillings occasionally. Has been bedridden for several years. Relieved once, £5. Voted £12.

Daughter, aged 61 years, of late M.R.C.S. Had to give up situation to nurse her mother and sister, both since deceased, and now endeavours to support herself by taking boarders. Relieved three times, £52. Voted £10.

Widow, aged 52 years, of L.R.C.P., L.R.C.S. Edin. No income; health very indifferent. Earns a few shillings a week as caretaker; no children. Relieved six times, £58. Voted £12.

Widow, aged 71 years, of M.R.C.S. Dependent on 5s. a week as old age pension and slight help from a daughter. Relieved 17 times, £183. Voted £12.

Widow, aged 52 years, of M.D. Edin. Capital used to pay husband's debts, and now takes charge of a branch surgery, living rent free. Children unable to help. Relieved four times, £40. Voted £12.

Daughter, aged 58 years, of late L.S.A. No income; endeavours to maintain herself by letting lodgings; health very feeble. Relieved twice, £22. Voted £12.

Widow, aged 59 years, of M.R.C.S. No income, and dependent on two sons who can ill afford to help. Relieved five times, £45. Voted £10.

Daughter, aged 40 years, of late M.D. Edin. No income; is a daily governess, but at present has no post. Relieved eight times, £32. Voted £5.

Widow, aged 85 years, of M.D. Aberd. No income; dependent on two daughters who are governesses. Relieved once, £18. Voted £18.

Daughter, aged 50 years, of late M.R.C.S. No income, and health will not allow of any occupation. Relieved once, £10. Voted £10.

Widow, aged 69 years, of M.R.C.S. Income £14 a year and receives occasional slight help from two sons, who can only support themselves with difficulty. Relieved once, £10. Voted £12.

Daughter, aged 53 years, of late M.R.C.S. No income, and owing to continual ill-health, which prevents employment, is dependent on small weekly allowance from sister. Relieved 12 times, £137. Voted £12.

Widow, aged 59 years, of M.B., C.M. Edin. Supported herself for some years after husband's death by taking charge of mental cases, but is now incapacitated by heart disease and dependent on a son, whose earnings are small. Relieved six times, £72. Voted £12.

Widow, aged 36 years, of M.R.C.S. Quite unprovided for at husband's death a couple of years ago and obliged to keep a small home for the sake of the children. Slight help from friends. Relieved twice, £15. Voted £10.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 7th, 1832.

EXTRAORDINARY NARRATIVE.[1]

[Under the above heading a letter appears at page 441 of our present volume, written by Mr. HOARE, a most respectable surgeon of Warminster, detailing particulars of a young man of the name of Higgins, who, though fully endowed with the power of speech, would never speak to his father, nor, as then believed by Mr. HOARE, to any other male person. We this week insert a further communication from that gentleman on the subject, the public press in his neighbourhood having, as he observes, treated the statement alluded to as too strange to be credible.]

To the Editor of THE LANCET.

SIR,—My communication (see LANCET, December 24, 1831) respecting the young man of the name of Higgins having occasioned many inquiries, much sarcastic observation, and many expressions of incredulity, I took the liberty of writing to the Rev. Dr. Colston on the subject, who has kindly favoured me with the following circumstantial reply. This, if not sufficient to convince the incredulous, will at least exonerate me from the imputation of having published an extraordinary statement on light grounds. I am, Sir,

Your obedient servant,

JOHN HOARE, Surgeon.

Warminster, March 17, 1832.

Lydford Rectory, Somerton,
March 4th, 1832.

"SIR,—Immediately on the receipt of your letter I sent for Eli Higgins, a tenant of mine, and the man who has excited so much interest from his inability to speak to persons generally. It is true he never was able to speak to his father, who resorted both to violent and kind means to induce him to do so, without effect. With his mother and sisters he frequently conversed without any extraordinary effort, and these were the only females with whom he ever held conversation; but he admitted, on my examining him minutely on the subject, that he had spoken to the Rev. Mr. Bowen, of Bath, and Mr. Beauchamp, a land surveyor, of West Pennard, in this county, about four years since; but he was unable to account for this exception, as he wished much to speak to every one, more particularly his father, who has been dead nearly six months. After a lapse of three days he could speak with fluency to every one, and immediately after the funeral of his father he called on me to take the small estate that had been occupied by him, and entered fully into conversation; which greatly astonished me, as I have known him from his earliest days,

[1] Vide "Looking Back" in THE LANCET of Dec. 25th, 1909, p. 1832, and "Notes, Short Comments, &c.," in THE LANCET of Jan. 15th, 1910, p. 217.

and made many attempts to get him to speak to me; once in particular, wishing to know the hour of the day, I asked him for his watch, which he gave me, and I threatened to keep it if he would not ask for it, but in vain. He admits from what he had heard, that he was strongly impressed with the idea that on the death of his father he should have power to address every one without difficulty, which has proved to be the case. He had heard of the rash vow made by his parent when his mother was pregnant with him, that if the child were a girl he would never speak to it, but he could not attest to the truth of this from any authority but general report. Eli's appearance is delicate, and does not indicate strength. There is something very peculiar in his manner of using his mouth when he speaks, and the length of his jaw, from the point of his ear to his chin, is very striking; his voice is pleasing, and his manner of conversation sensible for his station in life. He is a hard-working, industrious man, and has always exerted himself to the utmost to promote his father's interest. You may make use of these particulars in any manner you please, and I remain, Sir, yours faithfully,

"W. H. COLSTON.

"To John Hoare, Esq., Surgeon,
Warminster, Wilts.

"Below is the writing of Higgins, which I thought might be interesting to you.

"'Eli Higgins Aged 35 years in the parish of Baltonsborough in County of Somerset.'"

MEDICINE AND THE LAW.

The Liability of Local Authorities for Unsuccessful Prosecutions under the Public Health Act, 1875: Hobbs v. Winchester Corporation.

Mr. Justice Channell has recently given judgment in an action of considerable importance to local authorities and to vendors of food, brought for the purpose of enforcing an award made in accordance with the Public Health Act, 1875. As the learned judge made express reference to the probability that his decision would be submitted to the consideration of the Court of Appeal, the facts are best stated without comment so far as they illustrate the point at issue. The plaintiff, a butcher, furnished meat at the Winchester Barracks under a contract which imposed strict conditions in respect of any heifer or cow-beef supplied. It was not to be from an animal under two or above four years old and no portion of the udder was to be cut away. Two fore-quarters, one complete hind-quarter, and part of another all coming from one animal above the specified age and sent without the udder were condemned by the military authorities upon a certain occasion, and so far as the military contract was concerned penalties provided under it were exacted as to which no question of the propriety of their enforcement was raised. The attention, however, of the medical officer of health was also called to the meat, which was removed by him and was duly ordered by a magistrate to be destroyed, after which a prosecution was instituted against the butcher. This prosecution, instituted by the Corporation of the City of Winchester, was dismissed by the bench, and the defendant Hobbs took proceedings under the 308th section of the Public Health Act, 1875, to have the damage which he had sustained through it assessed by an arbitrator. The arbitrator, Mr. Radcliffe, K.C., found among other facts that one fore-quarter only of the meat was unfit for human food when seized, and that Hobbs (defendant to the summons and plaintiff in the action) did not know when the meat was delivered that any part of it was unfit for food, that his servants did not know it, and that neither he nor his servants could have discovered its condition by any examination which he or they could reasonably have been expected to make. Mr. Radcliffe awarded as damages a sum in respect of the termination of a contract with the War Office, which, however, was not claimed in the action, and also the costs to which Hobbs had been put in defending himself, amounting to £118, and a further sum of £800 for general damage to trade and business owing to the prosecution. In order to obtain these two sums for costs and damages the plaintiff Hobbs had to bring them within the terms of the 308th section of the Public Health Act already referred to, which provides compensation to be settled by arbitration "where any person sustains any damage by reason of the exercise of any of the powers of this Act in relation to any matter as to which he is not himself in default." The "exercise of powers under the Act," it was argued on behalf of the corporation, consisted in seizing the meat and taking it before the magistrate for destruction under the 114th section of the Act, and it was only for the loss thus entailed that the 308th section gave compensation, when there was no "default" on the part of the person damaged by it. Against this view there is a decision of the Court of Appeal (Walsham *v.* Brighouse Corporation, 1899, 2 Q.B. 286), in which costs incurred through a prosecution were allowed as damages against a corporation on a parallel occasion, and it was argued that both the £800 general damages, and the costs must equally be regarded as the result of the exercise by the defendants of the powers given by the Act. Mr. Justice Channell intimated that but for the judgment in Walsham *v.* Brighouse Corporation he might have held that the costs to which the plaintiff had been put followed not from the fact of the seizure, but from the institution of the prosecution. He was, however, of the opinion that the decision of the Court of Appeal governed the case before him both with regard to the costs and the damages. He commented upon the large sum awarded in respect of the latter, but said that seeing that that was the amount found by the arbitrator, and knowing who he was, he had no doubt the finding was correct. He therefore gave judgment for the two sums mentioned, granting a stay of execution in view of a possible appeal. It will be seen from the above that the point thus raised is of great importance to both parties to the case, as well as to potential parties to similar litigation, whether local authorities or food purveyors, the difference being considerable between compensation, measured by the value of meat seized and destroyed, and the recovery of substantial damages and costs of defence in respect of an unsuccessful prosecution.

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On the Sanitary Circumstances of the Axbridge Rural District, Somerset, by Dr. REGINALD FARRAR.[1]—Dr. Farrar directs attention to the unsatisfactory character of the water-supplies at present available in many of the parishes and villages of this rural district. The district is bounded on the west by the Bristol Channel, and contains two extensive tracts of flat alluvial land, separated from each other by the Mendip Hills, the western end of which cuts through the Axbridge district. The hill areas consist principally of carboniferous limestone, and at the base of the hills an abundance of water can be obtained from springs. On the upper slopes, however, water is scarce, and the inhabitants either depend on rain water caught from the roofs or have to go considerable distances down home to fetch water. Some private houses on the higher levels are now being supplied by windmill pumps, and this method is recommended for more general adoption. The greatest difficulty in the matter of water-supply is found by the villages on the marsh lands. Here the ground water is brackish and impure, and quite unfit for drinking purposes. The people use roof water, or rain water caught in shallow pits, and in some cases resort to "rhynes" or dykes, which are liable to serious pollution by the drainage of farms, by sheep-washing, and by other means. Many public wells have been shown to yield polluted water. In September of last year an outbreak of enteric fever involving 13 cases occurred in the village of Banwell, and was traced to the water of one of these wells. The danger of water which is impure and deficient in quantity is not confined to the inhabitants of the district. A large dairy in Banwell parish obtains the whole of its water for washing churns and making butter from a sewage-laden "rhyne" which runs near the dairy. The magnitude of the mischief which might be done if this "rhyne" became specifically infected with the germs of enteric fever will be understood when it is realised that 1000 gallons of milk are sold daily from this dairy. Apart from the question of risk to health, these unsatisfactory water-supplies form a serious drawback to the general development of the district. Dr. Farrar urges that the problem should be faced boldly and that the district council should be prepared to obtain a loan for the sum, estimated at £30,000, necessary for a comprehensive scheme of supply to the parishes concerned. This sum

[1] Reports to the Local Government Board on Public Health and Medical Subjects. New Series, No. 21. London: Wyman and Sons, Fetter-lane; Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. Price 3d.

is less than a year's assessable value of these parishes, and in the light of this report it is difficult to imagine a better or more necessary investment. It is to be hoped that the Local Government Board will lose no time in pressing this essential sanitary improvement on the local authorities.

On the Sanitary Circumstances and Administration of the Ramsey Urban District, with Special Reference to the Prevalence of Scarlatina, by Dr. R. D. SWEETING.[2]—The district of Ramsey, in the county of Huntingdon, comprises areas of fen land in which, as in the marsh lands of Axbridge, there is considerable difficulty in obtaining a safe and satisfactory supply of drinking water. The town of Ramsey itself, with a population of about 2600, is chiefly supplied by impounding the water from ditches which drain ground liable to human and animal excremental pollution. This water is received into a pit, at the inlet of which some attempt at filtration is made; it passes thence through a coarse filter to the well from which it is distributed. The filtration is inadequate, and the impurity of the water is locally recognised, the district council recommending that it should be boiled before drinking. Other supplies, obtained from public and private wells, are open to serious objection. The provision of a safe and sufficient public supply is not an easy matter, owing to the physical and geological conditions in the neighbourhood. Dr. Sweeting suggests boring, under expert advice, and alternatively other methods which, although somewhat costly, appear practicable in the circumstances of the district. In another section of the report Dr. Sweeting deals with scarlet fever prevalence, a subject on which special representations had been made by Dr. J. B. Wilkinson, the consulting medical officer of health of the county. In the first seven months of 1909 there were 128 notifications of scarlet fever in the whole district, which has a population of about 4900, and seven deaths occurred. This is equal to a case rate of about 44 per 1000 per annum, which must be regarded as constituting an exceptionally severe epidemic at the present day. 74 families were affected, of which 44 contributed single cases. Dr. Sweeting is inclined to attribute the persistent and severe prevalence of the disease largely to sustained personal infection and the absence of hospital isolation. In 1909, as compared with the two previous years, scarlet fever in Ramsey showed an exceptionally high fatality at ages between 15 and 30 years. It is also noteworthy that in three of the four fatal cases in this age period there were pronounced cerebral symptoms with suppression of rash. There is some indication that the disease is becoming generally more malignant in type in this district, and this may perhaps be attributed in part to the various insanitary conditions prevailing in Ramsey exercising a predisposing influence to this fever by lowering the bodily resistance to it.

On the Sanitary Circumstances and Administration of the Rural District of Easington, by Dr. R. W. JOHNSTONE.[3]—This report relates to a populous coal-mining district in the county of Durham, the conditions of which were investigated by the Local Government Board in consequence of complaint by the county council of neglect by the district council of various sanitary duties, particularly in the matter of housing of the working classes and construction of sewers. The great majority of the houses are owned by the colliery companies and let to the colliers rent-free as part of their wages. When there is no "colliery house" available, an allowance in money is made by the company, but this is seldom sufficient to pay the rent, and has the further disadvantage, from the collier's point of view, that it ceases when work is stopped by disputes or strikes. Most of the dwellings are rated under £8 a year, the companies paying the rates for the houses owned by them. Some of the colliery houses are very good, but a great many old dwellings exist, of which large numbers are dilapidated, damp, and faulty in construction. Where pits have been shut down the houses in the neighbourhood have fallen into disrepair, but nevertheless in many cases remain occupied. Overcrowding of persons in the dwellings is not infrequent. This is largely owing to the custom of taking lodgers, but is also due to insufficiency of houses in the vicinity of the collieries. Speaking generally, the colliers keep the inside of their houses with great neatness and cleanliness. "It is only when the dwelling itself is so damp and dilapidated as to dishearten the occupier that an unclean interior is found." Dr. Johnstone gives various examples of the faulty principles on which many of the cottages have been built in the past, and their bad results. There seems no reason, even in the matter of economy, for these conditions to be continued, and it is very necessary that the housing of the district should be systematically inspected, so that the worst, at any rate, of these dwellings may be suitably dealt with. This process should be facilitated by the provisions of the new Housing and Town Planning Act. The report gives prominence to the condition of the "back streets," which is one of the worst features of many of the colliery villages in Northumberland and Durham. The "front streets," which are usually more or less made up, channelled, and drained, are devoted to clothes-lines for hanging out washing, but otherwise are usually a desert so far as human use or occupation is concerned. The back streets, on the other hand, serve as the means of access to the houses and as the children's playground. In them are also generally situated the privy middens, during the scavenging of which the ground around is liable to frequent fouling. These back streets are hardly ever made up beyond the laying down of some ashes over the rough clay, and in wet weather are usually quagmires. From a health point of view the condition of these streets is much more important than that of the front ones. Dr. Johnstone considers that in general the district council has not been inactive in the sanitary administration of the area under its charge, but that housing reforms and certain other matters would have made less progress had it not been for the pressure exercised by the county authorities. Attention is directed in the report to various important reforms which should now be undertaken.

[2] Ibid., No. 19. Price 3d.
[3] Ibid., No. 20. Price 4d.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

British Guiana: Report of the Surgeon-General, 1908–09.—We have received from the Government printers at Georgetown, Demerara, a copy of the report of Dr. J. E. Godfrey, the Surgeon-General of the colony of British Guiana. The greater part of this document is concerned with administrative details respecting the local public hospitals and dispensaries, as well as respecting the asylums for lunatics and for lepers. An interesting and instructive section of the report deals with the public health of the colony, and it is to this section more especially that the present notice relates. The Surgeon-General reports that the colony has been free from any dangerous infectious or contagious disease throughout the year, although the existence of yellow fever in Barbados and of plague in Trinidad was still the cause of much anxiety. The birth-rate in 1908 was equal to 27·3 per 1000, and was lower by 1 per 1000 than in the preceding year. The deaths in 1908 exceeded the births by more than 1000, and were equal to a rate of 30·8 per 1000 of the population, or 6·1 per 1000 less than in the year immediately preceding, when the deaths exceeded the births by 2656. On this point the Surgeon-General remarks that "while it is gratifying to record that there was a very appreciable decrease in the death-rate, it is not pleasant to have to call attention to the very large fall in the birth-rate from 32·9 in 1906 to 27·3 in 1908; but such are the facts as revealed by the statistics of the Registrar-General." There appears to be no diminution in the sacrifice of infant life in the colony. According to the report we learn that of the 8299 infants born within the year under notice not fewer than 1644 died before completing their first year of life. Infantile mortality, measured by the proportion of deaths under one year to births registered, was therefore equal to 198 per 1000, as against 256 per 1000 in the preceding year. As in previous years, attention is again drawn to the prevalence of tuberculosis in the colony. During the year it caused 7·4 per cent. of the total mortality in British Guiana and 8·4 per cent. in Georgetown. Dr. Godfrey speaks appreciatively of the work done by the Society for the Prevention and Treatment of Tuberculosis. From personal experience he testifies to the fact that the operations of the society are being extended in the colony with beneficial results to the community generally. So far, the society's work has been effected independently of Government subsidy in any form, and it is to be hoped that want of funds in the future will not be allowed to hamper the good work now being done. The Surgeon-General asserts that this matter is one of vital importance to the colony, and declares it to be the duty of

his fellow colonists to support the society in the execution and extension of its work. In the prophylaxis and treatment of tuberculosis difficulties are encountered in the colony almost identical with those with which we are familiar at home. Dr. E. D. Rowland, resident medical officer of the Georgetown Public Hospital, speaks of the results of institution treatment of pulmonary tuberculosis as extremely disappointing. The cases come in, for the most part, in a hopeless condition, but the few patients who apply in an early stage almost invariably improve under treatment; their temperature soon falls to normal and they put on weight rapidly. Nevertheless, in spite of entreaty to continue treatment, these patients usually insist on leaving hospital the moment they feel stronger, only to return in a few months in a sadly worse, if not a hopeless, condition. The Surgeon-General gives an interesting account of the new treatment of leprosy by Nastin, as carried out in the colony by Professor Deycke of Hamburg; and although it is too early as yet to speak definitely on the point he speaks of the results as distinctly encouraging. We hope to hear further details of this important treatment. Great attention is being paid in the colony to the active treatment of ankylostomiasis. Although the mortality from this disease is not high, the loss to the labouring classes from the undermining of health by this parasite is stated to be enormous. The people themselves take intelligent interest in their cases and realise the importance of "getting rid of the belly worms."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8159 births and 4614 deaths were registered during the week ending April 2nd. The annual rate of mortality in these towns, which had been equal to 13·5 and 13·9 per 1000 in the two preceding weeks, further rose to 14·4 in the week under notice. During the 13 weeks of the past quarter the annual death-rate in these towns did not exceed 15·0 per 1000, and was 3·0 below the average rate in these towns in the four preceding corresponding quarters; in London the mean rate during last quarter was equal to 14·9 per 1000. The lowest reported annual rates of mortality in the 76 towns during last week were 8·0 in East Ham, 8·2 in Willesden, 8·3 in Halifax, and 8·5 in Walthamstow; the rates in the other towns ranged upwards, however, to 19·4 in Plymouth, 19·7 in Liverpool, and 24·3 both in Merthyr Tydfil and in Swansea. In London the recorded death-rate last week did not exceed 14·5 per 1000. The 4614 deaths registered in the 76 towns during the week showed a further increase of 166 upon the low numbers in the two previous weeks, and included 332 which were referred to the principal epidemic diseases, against 335 and 317 in the two preceding weeks; of these 332 deaths, 139 resulted from whooping-cough, 93 from measles, 35 from diphtheria, 30 from diarrhœa, 25 from scarlet fever, and 10 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 76 towns during the week from these epidemic diseases was equal to 1·0 per 1000, corresponding with the rate in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Southampton, Oldham, Preston, East Ham, Brighton, or in 13 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·7 per 1000 in Ipswich, 3·3 in Merthyr Tydfil, 3·7 in Hanley, and 4·4 in Burnley. The fatal cases of whooping-cough in the 76 towns, which had been 134 in each of the two previous weeks, were 139 in the week under notice, and caused annual death-rates equal to 1·3 in Birkenhead and in Newport, 1·5 in Hastings and in Wolverhampton, and 2·5 in Devonport. The deaths from measles, which had been 84 and 78 in the two previous weeks, rose to 93 last week; the highest death-rates from this disease during the week were 2·2 in Hanley and in Bootle, 2·6 in Merthyr Tydfil, and 2·9 in Burnley. The 35 deaths referred to diphtheria showed a decline of 7 from the number in the previous week, and included 11 in London and its suburban districts, 3 in Hull, 3 in Newcastle-on-Tyne, and 3 in Manchester and Salford. The 30 deaths attributed to diarrhœa exceeded the low number in the previous week, but were below the average. The 25 fatal cases of scarlet fever showed a further decline from recent weekly numbers; 3 were recorded both in Birmingham and in Liverpool. Only 10 deaths in the 76 towns were referred to enteric fever, a lower number than in any previous week of this year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 24 preceding weeks from 2819 to 1650, had further fallen to 1611 on April 2nd; 158 new cases of this disease were admitted to these hospitals during last week, against 199, 180, and 173 in the three preceding weeks. The Metropolitan Asylums Hospitals contained no case of small-pox on April 2nd. Of the 1354 deaths registered in London during the week under notice 310 were referred to pneumonia and other diseases of the respiratory system, showing a further increase of 49 upon the low numbers in the two previous weeks; they were, however, 39 below the corrected average number in the corresponding week of the five years 1905-09. The causes of 36, or 0·8 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were duly certified in Leeds, Bristol, Bradford, Newcastle-on-Tyne, Hull, Leicester, and in 50 other smaller towns; the 36 uncertified causes of death in the 76 towns included 7 in Liverpool, 6 in Birmingham, and 3 in St. Helens.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 930 births and 656 deaths were registered during the week ending April 2nd. The annual rate of mortality in these towns, which had been equal to 17·2, 16·9, and 15·3 per 1000 in the three preceding weeks, rose again to 18·1 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 17·5 per 1000, and exceeded by 2·5 the mean rate during the same period in the 76 largest English towns. The annual death-rates during last week in these eight Scotch towns ranged from 14·3 and 15·9 in Aberdeen and Edinburgh to 25·4 in Dundee and 26·9 in Greenock. The 656 deaths from all causes in the eight towns during the week showed an increase of 100 upon the low numbers in the previous week, and included 82 which were referred to the principal epidemic diseases, against 72 and 77 in the two preceding weeks. These 82 deaths were equal to an annual rate of 2·3 per 1000; the mean death-rate from the same diseases in the 76 English towns last week did not exceed 1·0 per 1000. These 82 deaths in the Scotch towns included 43 from measles, 25 from diarrhœa, 7 from whooping-cough, 4 from scarlet fever, 2 from diphtheria, and 1 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 35 and 45 in the two previous weeks, were 43 last week, of which 16 occurred in Dundee, 10 in Glasgow, 7 in Greenock, 4 both in Edinburgh and in Leith, and 2 in Paisley. The 25 deaths attributed to diarrhœa showed a marked increase upon the numbers in recent weeks, and included 10 in Glasgow, 5 in Dundee, 4 in Edinburgh, 3 in Leith, and 2 in Greenock. Of the 7 fatal cases of whooping-cough 4 were returned in Glasgow and 2 in Greenock. The 4 deaths from scarlet fever included 2 in Glasgow; and the fatal case of "fever" also occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had been 100 in each of the two previous weeks, rose to 122 in the week under notice, but were 41 below the number in the corresponding week of last year. The causes of 23, or 3·5 per cent., of the deaths in the eight towns were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 661 births and 457 deaths were registered during the week ending April 2nd. The mean annual rate of mortality in these towns, which had been equal to 22·0, 19·0, and 21·1 per 1000 in the three preceding weeks, declined again to 20·7 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 21·8 per 1000, whereas the mean rate during the same period did not exceed 15·0 in the 76 largest English towns and 17·5 in the eight principal Scotch towns. The annual death-rate

last week was equal to 19·8 in Dublin, 18·4 in Belfast, 32·9 in Cork, 13·2 in Londonderry, 23·2 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of the Irish towns was equal to 24·7 per 1000. The 457 deaths from all causes in the 22 town districts last week showed a decline of 9 from the number returned in the previous week, and included 26 which were referred to the principal epidemic diseases, corresponding with the number in the previous week; these 26 deaths were equal to an annual rate of 1·2 per 1000; in the 76 English towns the mean rate last week from the same diseases did not exceed 1·0 per 1000, while in the eight Scotch towns it was equal to 2·3. The 26 deaths from these diseases in the Irish towns last week included 8 from whooping-cough, 6 from measles, 5 from diarrhœa, 3 from diphtheria, 2 from scarlet fever, and 2 from enteric fever, but not one from small-pox. The 8 fatal cases of whooping-cough showed a considerable decline from the numbers in recent weeks; they included 6 in Belfast and 1 in Dublin. All the 6 deaths from measles, the 2 from scarlet fever, and 1 each from diphtheria, enteric fever, and diarrhœa occurred in Belfast. A fatal case of enteric fever was also returned in Dublin. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had been 104 and 107 in the two preceding weeks, declined last week to 102. The causes of 20, or 4·4 per cent., of the deaths registered last week in the Irish towns were not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., while in the eight principal Scotch towns it was equal to 3·5 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Fleet-Surgeon A. E. Kelsey has been placed on the Retired List (to date March 29th).

The following appointments are notified:—Staff-Surgeons: E. S. Tuck, to the *Victorious*, and C. B. Fairbank, to the *Flora*. Surgeons: W. C. B. Smith to the *Triton*, and H. F. Briggs to the *Leander*. Civil Practitioner: W. J. O'Doherty to be Surgeon and Agent at Teelin and Malinmore (Glen Bay).

ROYAL ARMY MEDICAL CORPS.

Brevet-Colonel F. J. Lambkin, lecturer in syphilology, Royal Army Medical College, proceeds to South Africa next month. Lieutenant-Colonel E. J. E. Risk, from Bloemfontein, has been selected for the appointment of Administrative Medical Officer of the Belfast District. Lieutenant-Colonel S. R. Wills, on arrival in India, has been appointed to command the station hospital, Agra. Lieutenant-Colonel A. A. Sutton, D.S.O., from Woolwich, has been appointed Senior Medical Officer, West Coast of Africa, vice Major F. J. W. Porter, D.S.O., tour expired. Lieutenant-Colonel D. M. O'Callaghan, from Kuldana, has been posted to Aldershot. Lieutenant-Colonel R. H. Penton, D.S.O., from York, has been posted to Poona. Lieutenant-Colonel P. C. H. Gordon has arrived home from India. Major C. A. Stone and Major A. L. Way have been selected for increased rate of pay under Article 317 of the Royal Warrant. Major A. J. Luther, Major St. J. B. Killery, and Major G. B. Carter have arrived home from India on completion of a tour of foreign service. Major R. J. Copeland has been transferred from the Seventh (Meerut) Division to the Eighth (Lucknow) Division and appointed to command the station hospital at Darjeeling. Major T. McCulloch, from Lebong, has been appointed to command the station hospital at Mandalay. Major J. D. Alexander has been appointed to command the station hospital at Thayetmyo. Major E. M. Hassard, from Shorncliffe, has been posted to Lahore. Major M. MacG. Rattray, from Bangalore, has been posted to Gravesend. Major H. W. Grattan has been appointed Sanitary Officer of the Eighth (Lucknow) Division. Major F. W. Hardy, from London, has been appointed Sanitary Officer, Northern Area, Eastern Command, vice Captain Tilbury-Brown, who has proceeded to Burma. Captain T. E. Harty, Captain R. R. Lewis, and Captain D. P. Johnstone have arrived home, tour expired, from India, and Captain F. B. Delavoye has arrived home from Bermuda. Captain G. M. Goldsmith has been appointed Staff-Surgeon, Divisional Headquarters, Burma. Captain R. N. Woodley has been transferred from Cork District to Bulford Camp. Captain Ievers has joined at Wynberg. Captain D. S. Skelton has been posted to the Southern Command. Captain H. Simson has been appointed a specialist in the prevention of disease and placed in charge of the Brigade Laboratory at Ahmednagar. Captain E. P. Hewitt, from Norwich, has joined Secunderabad station hospital for duty. Captain E. W. Siberry, from Aldershot, has been posted to Pretoria. Captain L. M. Purser, from Colchester, has been appointed to the station hospital at Sialkot. Captain R. F. M. Fawcett has been transferred from Gosport to Bulford Camp. Lieutenant J. S. McCombe, Lieutenant W. J. Tobin, Lieutenant R. O'Kelly, and Lieutenant C. Ryles have embarked for India. Lieutenant M. Leckie has been seconded for service with the Egyptian Army. Lieutenant W. I. Thompson has been transferred from Naini Tal to Lucknow, and Lieutenant F. H. M. Chapman from Darjeeling to Lebong. Lieutenant M. P. Leahy, on arrival in India, has been posted to Poona.

INDIAN MEDICAL SERVICE.

Colonel T. E. L. Bate, C.I.E., has been nominated by the Lieutenant-Governor of the Punjab as a member of the Legislative Council of the Province for the purpose of making laws and regulations, vice the Hon. Mr. W. F. Fenton. Lieutenant-Colonel C. N. Bensley has been granted one year's leave. Lieutenant-Colonel C. E. Sunder, civil surgeon, of Gaya, has been appointed a First-class Civil Surgeon. Lieutenant-Colonel S. C. Sarkies has been appointed District Medical and Sanitary Officer and Superintendent of the Reformatory School at Chingleput. Lieutenant-Colonel R. B. Roe, Civil Surgeon and Superintendent of the Lunatic Asylum at Nagpore, has been appointed to officiate as Inspector-General of Civil Hospitals in the Central Provinces. Lieutenant-Colonel L. G. Fisher has been appointed an officiating First-class Civil Surgeon, vice Lieutenant-Colonel J. Morewood, who has been confirmed in his appointment as a First-class Civil Surgeon, with effect from Dec. 14th, 1909. Lieutenant-Colonel D. S. E Bain has been permitted to retire from April 5th. Major J. Grant, Bombay, has had his leave extended by six months. Major Mulvany, officiating Inspector-General of Prisons, Bengal Presidency, has been granted combined leave for one year, four months, and 24 days. Major A. C. Elliott has had his leave extended for six months on medical certificate. Major Bamfield has been posted to the Punjab for duty under the Home Department of the Government of India. Major J. Jackson and Major R. D. Green have arrived home from India on leave. Captain W. Tarr, Officiating Civil Surgeon, Chanda, officiates as Superintendent of the Central Jail, Jubbulpore, during the absence on leave of Major C. H. Bensley. Captain R. K. White has been appointed to the substantive medical charge of the 18th Infantry, vice Captain A. T. Pridham. Captain H. Hallilay, civil surgeon at Dharmsala, has been transferred to Lyallpur. Captain Leslie has been selected for appointment in the Jail Department. Captain W. McM. Pearson, civil surgeon at Banda, United Provinces, has been granted privilege leave, combined with study leave and furlough, for 18 months, with effect from March 16th. Captain Scott, civil surgeon at Bakarganj, Eastern Bengal, has been granted one year's leave. Captain Godson, from Goalpara, is appointed to officiate as civil surgeon at Bakarganj. Captain McCoy, civil surgeon at Sylhet, has been granted 20 months' leave. Captain P. L. O'Neill has been appointed district medical and sanitary officer, Bellary, Madras. Captain G. P. T. Groube has been appointed to officiate as civil surgeon, Seoni District, and to the executive and medical charge of the District Jail. Captain A. S. Lisle, whose services have been placed temporarily at the disposal of the Burma Government, has been posted for duty at Inslin Central Jail. Lieutenant F. O'D. Fawcett, attached to the 23rd Cavalry, has been transferred for duty with the 59th Rifles.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st Home Counties Field Ambulance: Lieutenant Joseph Ward to be Captain (dated Feb. 1st, 1910).

For attachment to Units other than Medical Units.—Hugh Davies to be Lieutenant (dated Dec. 11th, 1909). Charles Percy Woodstock to be Lieutenant (dated Jan. 1st, 1910). William Robert Wilson to be Lieutenant (dated Jan. 10th, 1910).

Correspondence.

"Audi alteram partem."

SINGLE-HANDED ATTENDANCE AT DIFFICULT LABOURS.

To the Editor of THE LANCET.

SIR,—I have received the following letter dealing with a subject of such practical importance that I gladly avail myself of your permission to reply to it through THE LANCET.

1, Carcroft Villas, Carcroft, near Doncaster,
March 5th, 1910.

To the Master of the Rotunda Hospital.

SIR,—I am encouraged by the knowledge of your never-failing desire to be of service to the students of your hospital, past and present, to seek information on a subject very perplexing to your correspondent and of vital importance in obstetrical practice, as it brings under consideration the question of prevention of sepsis in maternity cases, and with this object in view I wish to ask what procedure you would recommend in a case where, *single-handed*, you were compelled to deliver a patient of a fœtus or placenta, and at the same time have your patient fully anæsthetised? I have been more than once confronted with this difficulty and must admit that I consider the fortunate results, if not providential, were either due to the non-virulence of the micro-organisms or the extraordinary resistance of the patient, for when one has to leave the operation to attend to the chloroform and return without delay to the necessary manipulations, the difficulty of avoiding septic contamination is obviously very great and necessarily a source of worry to the conscientious medical attendant. I should therefore feel honoured and instructed if you would kindly answer my inquiry either by letter or through THE LANCET, and thus benefit many more general practitioners and the maternal portion of the community. It could be dealt with from a practical standpoint and not illuminated with the flowery language and want of instruction so evident in text-books, all of which presuppose the G.P. to have about him all the facilities of a large maternity hospital. If you could suggest some means of keeping forceps sterile when boiled in the ordinary way but not for immediate use it would be useful, as not being of an ingenious turn, and not being possessed of a steam steriliser, I know no means of rendering a towel or other case sterile, and the means of sterilising instruments in the patient's house are not satisfactory. I had the pleasure of reading your paper in this week's LANCET—The Modern Treatment in Cases of Contracted Pelvis. I deem it instructive, but then I must admit it was the first time I had heard you speak of *high-up forceps*.

I shall esteem it a very great favour if you will kindly clear up my difficulties.

Yours truly,
C. SHEAHAN.

All practising obstetricians have been confronted with the difficulty of attending single-handed at a labour case, and to do so in an aseptic and efficient manner is a procedure calling for considerable forethought.

"Management of a case" to my mind comprises an intelligent supervision of all that concerns the welfare of the woman in labour and of her infant. In the absence of a nurse the accoucheur's duties will include: (1) preparation of the room; (2) personal attention to the patient; and (3) attention to the child.

Under the first head must be included attention to the fire; the collection and cleansing of basins and jugs; preparation of antiseptic lotions, douches, &c.; preparation of bed, diapers, &c. Under the second head is included disinfection of the patient, attention to the diet, to sleep, and to exercise, and to the bowel and bladder functions; palpation, auscultation, and perhaps vaginal examination; pressure on the fundus if necessary; the administration of chloroform; the support of the perineum; control of the uterus; expression and delivery of the afterbirth; examination of the perineum, and suture of the latter if required, and the final washing up and binding. Under the third head we include examination to ascertain whether the cord is round the neck, and if so, its prompt liberation; the cleansing of the child's eyes and mouth; the delivery of the shoulders; ligature and division of the cord; the possible resuscitation of the infant; the bath; dressing the cord, &c. This surely is a pretty formidable task to expect one person to carry out efficiently, and yet it is precisely the duty which has, by Act of Parliament, been relegated to midwives, many of whom, because of a deficient training, have not acquired the aseptic instinct.

The management of labour has been greatly simplified since the introduction of rubber gloves, and I suggest one plan at least which will with their aid enable us single-handed to cope with our difficulties. Preparation of the room, bed, vessels, antiseptics, administration of medicine, food, and enemas, and palpation and auscultation can all be undertaken with ungloved hands. When pressure signs appear the patient is best placed in the side position, with hips well out, and thighs flexed on the abdomen. To obtain such a position the personal help of the accoucheur is nearly always required. The anæsthetic can be administered by dropping chloroform on to a mask held by the patient to her face. When not in use the chloroform bottle should stand in a bowl of cold corrosive sublimate solution.

The time has now come to wash the hands in a very thorough manner and to draw a glove on the left one. This hand is now passed between the patient's legs and controls the head as it presses down on the perineum. All the manipulations involving contact with the vulval opening should be carried out by this hand. The right ungloved hand will have much necessary, but more or less soiling, work to perform; this work need not be particularly specified. During the delivery of the head it is an easy matter to make the elbow of the left arm follow down the fundus. During the delivery of the shoulders both hands will be found useful and can be employed in a perfectly safe manner. They will be required for tying and severing the cord, and for lifting the baby from the bed. The perineum should be washed and examined for tears, and these are best stitched immediately. To do this, a needle is held in a needle-holder by the ungloved hand, whilst the gloved one passing between the legs of the patient separates the vulval orifice and directs the needle's progress. The obstetrician now helps the patient to turn on to her back and uses the right arm exclusively for the purpose. The glove should be rapidly removed from the left hand, and whilst doing this it turns inside out and becomes a right-handed glove. It is dropped into a solution of antiseptic, or better still into a saucepan of boiling water to be disinfected. The hands are again to be rapidly washed and the glove applied, but this time to the right hand, the duty of the left is now to support the fundus and to express the placenta when the time comes to do so. The right receives the afterbirth and manipulates the membranes so that they may be detached in their entirety. The final washing up and the application of the scorched pad to the vulva is relegated to the gloved hand; the glove should be removed before the binder is applied.

Gloves cost under 3*s.* per pair, they stand repeated boiling, and when used with care, disinfected, dried, and powdered with baked French chalk after use, they will last intact for months. It is usually only necessary to employ one glove at a time, the second one can be used for emergencies. I consider it almost criminal folly to be unprovided with these necessary adjuncts, and a benefit to humanity would be conferred were the Central Midwives Board to compel their universal adoption amongst midwives. In the event of forceps being found necessary, both gloves should be requisitioned, but not until the patient has been anæsthetised whilst lying in the correct position for their employment, or it may be found more convenient to lock the forceps first. Before administering the anæsthetic the gloves should be removed and reapplied before extraction.

Before the introduction of steam sterilisers I was in the habit of boiling my linen roll instrument case, drying it in the oven, placing it on a clean towel, and ironing it. My forceps and other instruments were boiled in weak lysol solution, and laid without previous drying on to the linen case. Their great heat caused quick evaporation, and prevented any tendency to rust. This linen roll, which I still employ, resembles an opened envelope; the edges are folded over the instruments before being rolled up. If protected from touch contamination such a case will require sterilisation only at long intervals. Air contact may to a large extent be disregarded; I say to a large extent, for I am not one of those who hold that septic organisms cannot be deposited through the medium of air. They are, however, deposited in very small numbers and in such isolation that their presence may be discounted. Soiled instruments must be carried home in a separate case, and ungloved fingers must not be permitted to touch the inside of the case. As a further protection my roll has an outer waterproof covering, and this avoids its contamination.

Mr. Sheahan expresses surprise that I have in a recent paper dealing with contracted pelvis given a qualified approval of the application of high forceps. My view in respect to this question has never varied—namely, that an unfixed head is a contra-indication to forceps application, but that in spite of this contra-indication they sometimes succeed in delivering a living child and may therefore be

tentatively used provided all arrangements are made for rapid delivery by some enlarging operation in the event of their purpose not being rapidly attained.

I am, Sir, yours faithfully,

Rotunda Hospital, Dublin. E. HASTINGS TWEEDY.

LEGISLATION IN ANÆSTHETICS.

To the Editor of THE LANCET.

SIR,—In his letter which appeared in THE LANCET of March 26th last Dr. Blumfeld very properly draws the attention of the profession to the proposed amendment by the Council of the Royal College of Surgeons of England to the important legislative recommendations of the General Medical Council in regard to anæsthetics. As Dr. Blumfeld points out, the suggestion of the Council of the College that registered dental practitioners should be permitted to administer certain scheduled anæsthetics for operations other than those of dental surgery would, if carried into effect, bring about one of the very evils which the General Medical Council is endeavouring to remedy—viz., the assumption by those who have received only a partial medical and surgical training of responsibilities and duties which can only be discharged satisfactorily by those who have passed through the full medical and surgical curriculum. I must confess that I am at a loss to understand such a suggestion, and I am glad to observe in the minutes of the meeting of the Executive Committee of the General Medical Council held on Feb. 21st last (p. 25) that this committee was unable to agree to the proposed amendment by the Council of the College.

The following is the resolution passed by the Executive Committee on the occasion of a communication from the Lord President of the Privy Council submitting the amendment proposed by the Council of the College of Surgeons, the "words proposed to be omitted" referred to in the resolution being those used by the General Medical Council in the legislative recommendations they forwarded to the Lord President of the Privy Council restricting registered dentists to the use of certain scheduled anæsthetics in dental surgery:—

> That the Lord President be informed that the words proposed to be omitted were inserted advisedly by the Council, and in the opinion of the Executive Committee it is desirable in the public interest that they should be retained. The Executive Committee would point out that cases may occur in which, during the course of medical or surgical operations, commenced under anæsthesia produced by nitrous oxide or other "specified" preparation, it is found necessary at a later stage to resort to more potent anæsthetics such as chloroform or ether. In such a case it might endanger the patient's safety, and the success of the operation, were the anæsthetist unqualified to administer the latter, as under the legislation proposed an anæsthetist possessed only of a dental qualification would be.

It is a matter for congratulation that the Executive Committee of the General Medical Council have so fully realised one of the main objections to the proposal made by the College of Surgeons in regard to the administration of anæsthetics by dental practitioners. With the other objections Dr. Blumfeld has adequately dealt, and I fully endorse his views. I would lay particular stress upon one of these objections—viz., that under the proposed amendment the risk of general anæsthesia in patients suffering from grave constitutional conditions would greatly be increased. I would point out that it would be distinctly contrary to public interests and to the general spirit of the proposed reforms to expect practitioners who are not in the habit of meeting and treating general medical and surgical conditions clinically to take upon themselves the responsibilities of anæsthesia in general surgery. The vast majority of patients requiring anæsthetics for dental operations are in good or fair health, and though personally I am still of opinion that medical men are the proper persons to administer *all* general anæsthetics to such patients, it must be admitted there is but little risk to life when the safer of these anæsthetics are administered by qualified dentists who are not themselves operating. But if the proposal of the Council of the Royal College of Surgeons were to take effect we should have dental practitioners administering their scheduled anæsthetics to patients of a class totally different from that which in the ordinary routine of their work they are accustomed to meet. As matters now stand, such patients almost invariably obtain the services of two medical men (except in conditions of extreme urgency) whenever a surgical operation has to be performed; and we should be opening the door to a new and unnecessary danger were our legislature to sanction the administration of general anæsthetics to such patients by those who have had little or no clinical experience to guide them. Moreover, *cæteris paribus*, the risk of anæsthesia is undoubtedly less in dental than in general surgical operations owing to the almost invariable preliminary insertion of the mouth-prop—a procedure which is largely instrumental in preventing obstructed breathing.

It is highly satisfactory that, with the one exception in regard to dentists, the Council of the College agrees with the proposals of the General Medical Council, and it is to be hoped that the report of the Departmental Committee, which will, I understand, soon be issued, will be equally favourable to legislation. Whilst many of us hoped that the General Medical Council in their proposals might have restricted the administration of all general anæsthetics to registered medical practitioners and the use of local (injected) anæsthetics to registered medical or to registered dental practitioners, there can be no doubt that their scheme to allow registered dentists to administer certain of the least toxic general anæsthetics in dental surgery is deprived of much, if not most, of its objections by the important reservation that, save in the most exceptional circumstances, the administration of the anæsthetic and the performance of the operation shall not be undertaken by the same individual. There can be no doubt, indeed, that the legislative recommendations of the General Medical Council deserve the unqualified support of the whole profession. They certainly meet the difficulties and requirements of the situation as well as they can be met and if, as I trust, they may shortly become law, a great public service will have been rendered.—I am, Sir, yours faithfully,

London, April 5th, 1910. FREDERIC HEWITT.

ACCIDENT CLAIMS AS AFFECTING THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—I think that most medical men who have had much experience of work in connexion with the Workmen's Compensation Act will agree with Mr. Albert Benthall's strictures on the conduct of a small number of medical men who are constantly in evidence in such cases. These gentlemen are well known to medical examiners for insurance offices, &c. (and, unfortunately, are well known to the workmen also), as prepared to back any claim, *bonâ fide* or otherwise, in court or out of court. Fortunately, for the credit of the profession to which they belong, they are few in numbers, but their power for harm is not to be measured by their numerical insignificance.

Another most important matter is the question of providing special treatment for and, consequently, obtaining a certain amount of control over certain accident cases. It has always seemed to me that the absolute lack of any practical control over the carrying out of the treatment of a case is not fair to the insurance company and the employer. I am afraid that I cannot agree with Mr. Benthall in considering that "the great majority of working-men are honest" when it comes to a question of compensation for injury. I have examined some hundreds of cases annually during the past eight years, and it is my experience that there are very few which are not exaggerated, to say the very least, in some way or another. I think it would be difficult to find any Act of Parliament that has had so demoralising an effect as the one in question. For this result I think the insurance companies themselves are somewhat to blame. What is it that makes an injured man try and drag out his case to the uttermost? Is it the prospect of half-pay—and possibly club money in addition—with nothing to do? I think not. I think it is the prospect of his case being settled by the payment of a lump sum. I firmly believe that this method of getting rid of a case is at the bottom of most of the malingering that goes on. And everything is in favour of the man who is playing this sort of game. Granted that he is genuinely injured, what control is there over him to see that he carries out his treatment? He is probably either a club patient or an out-patient at one of the hospitals, and in neither case can the treatment he can receive be considered satisfactory. In the first instance the most suitable treatment can often not be carried out in his home (even if the man would take the trouble to follow instructions), and in the second because in the bustle and over-work of a crowded

Correspondence.

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March 5th, 1910.

To the Master of the Rotunda Hospital.

SIR,—I am encouraged by the knowledge of your never-failing desire to be of service to the students of your hospital, past and present, to seek information on a subject very perplexing to your correspondent and of vital importance in obstetrical practice, as it brings under consideration the question of prevention of sepsis in maternity cases, and with this object in view I wish to ask what procedure you would recommend in a case where, *single-handed*, you were compelled to deliver a patient of a fœtus or placenta, and at the same time have your patient fully anæsthetised? I have been more than once confronted with this difficulty and must admit that I consider the fortunate results, if not providential, were either due to the non-virulence of the micro-organisms or the extraordinary resistance of the patient, for when one has to leave the operation to attend to the chloroform and return without delay to the necessary manipulations, the difficulty of avoiding septic contamination is obviously very great and necessarily a source of worry to the conscientious medical attendant. I should therefore feel honoured and instructed if you would kindly answer my inquiry either by letter or through THE LANCET, and thus benefit many more general practitioners and the maternal portion of the community. It could be dealt with from a practical standpoint and not illuminated with the flowery language and want of instruction so evident in text-books, all of which presuppose the G.P. to have about him all the facilities of a large maternity hospital. If you could suggest some means of keeping forceps sterile when boiled in the ordinary way but not for immediate use it would be useful, as not being of an ingenious turn, and not being possessed of a steam steriliser, I know no means of rendering a towel or other ease sterile, and the means of sterilising instruments in the patient's house are not satisfactory. I had the pleasure of reading your paper in this week's LANCET—The Modern Treatment in Cases of Contracted Pelvis. I deem it instructive, but then I must admit it was the first time I had heard you speak of *high-up forceps*.

I shall esteem it a very great favour if you will kindly clear up my difficulties.

Yours truly,
C. SHEAHAN.

All practising obstetricians have been confronted with the difficulty of attending single-handed at a labour case, and to do so in an aseptic and efficient manner is a procedure calling for considerable forethought.

"Management of a case" to my mind comprises an intelligent supervision of all that concerns the welfare of the woman in labour and of her infant. In the absence of a nurse the accoucheur's duties will include: (1) preparation of the room; (2) personal attention to the patient; and (3) attention to the child.

Under the first head must be included attention to the fire; the collection and cleansing of basins and jugs; preparation of antiseptic lotions, douches, &c; preparation of bed, diapers, &c. Under the second head is included disinfection of the patient, attention to the diet, to sleep, and to exercise, and to the bowel and bladder functions; palpation, auscultation, and perhaps vaginal examination; pressure on the fundus if necessary; the administration of chloroform; the support of the perineum; control of the uterus; expression and delivery of the afterbirth; examination of the perineum, and suture of the latter if required, and the final washing up and binding. Under the third head we include examination to ascertain whether the cord is round the neck, and if so, its prompt liberation; the cleansing of the child's eyes and mouth; the delivery of the shoulders; ligature and division of the cord; the possible resuscitation of the infant; the bath; dressing the cord, &c. This surely is a pretty formidable task to expect one person to carry out efficiently, and yet it is precisely the duty which has, by Act of Parliament, been relegated to midwives, many of whom, because of a deficient training, have not acquired the aseptic instinct.

The management of labour has been greatly simplified since the introduction of rubber gloves, and I suggest one plan at least which will with their aid enable us single-handed to cope with our difficulties. Preparation of the room, bed, vessels, antiseptics, administration of medicine, food, and enemas, and palpation and auscultation can all be undertaken with ungloved hands. When pressure signs appear the patient is best placed in the side position, with hips well out, and thighs flexed on the abdomen. To obtain such a position the personal help of the accoucheur is nearly always required. The anæsthetic can be administered by dropping chloroform on to a mask held by the patient to her face. When not in use the chloroform bottle should stand in a bowl of cold corrosive sublimate solution.

The time has now come to wash the hands in a very thorough manner and to draw a glove on the left one. This hand is now passed between the patient's legs and controls the head as it presses down on the perineum. All the manipulations involving contact with the vulval opening should be carried out by this hand. The right ungloved hand will have much necessary, but more or less soiling, work to perform; this work need not be particularly specified. During the delivery of the head it is an easy matter to make the elbow of the left arm follow down the fundus. During the delivery of the shoulders both hands will be found useful and can be employed in a perfectly safe manner. They will be required for tying and severing the cord, and for lifting the baby from the bed. The perineum should be washed and examined for tears, and these are best stitched immediately. To do this, a needle is held in a needle-holder by the ungloved hand, whilst the gloved one passing between the legs of the patient separates the vulval orifice and directs the needle's progress. The obstetrician now helps the patient to turn on to her back and uses the right arm exclusively for the purpose. The glove should be rapidly removed from the left hand, and whilst doing this it turns inside out and becomes a right-handed glove. It is dropped into a solution of antiseptic, or better still into a saucepan of boiling water to be disinfected. The hands are again to be rapidly washed and the glove applied, but this time to the right hand, the duty of the left is now to support the fundus and to express the placenta when the time comes to do so. The right receives the afterbirth and manipulates the membranes so that they may be detached in their entirety. The final washing up and the application of the scorched pad to the vulva is relegated to the gloved hand; the glove should be removed before the binder is applied.

Gloves cost under 3*s.* per pair, they stand repeated boiling, and when used with care, disinfected, dried, and powdered with baked French chalk after use, they will last intact for months. It is usually only necessary to employ one glove at a time, the second one can be used for emergencies. I consider it almost criminal folly to be unprovided with these necessary adjuncts, and a benefit to humanity would be conferred were the Central Midwives Board to compel their universal adoption amongst midwives. In the event of forceps being found necessary, both gloves should be requisitioned, but not until the patient has been anæsthetised whilst lying in the correct position for their employment, or it may be found more convenient to lock the forceps first. Before administering the anæsthetic the gloves should be removed and reapplied before extraction.

Before the introduction of steam sterilisers I was in the habit of boiling my linen roll instrument case, drying it in the oven, placing it on a clean towel, and ironing it. My forceps and other instruments were boiled in weak lysol solution, and laid without previous drying on to the linen case. Their great heat caused quick evaporation, and prevented any tendency to rust. This linen roll, which I still employ, resembles an opened envelope; the edges are folded over the instruments before being rolled up. If protected from touch contamination such a case will require sterilisation only at long intervals. Air contact may to a large extent be disregarded; I say to a large extent, for I am not one of those who hold that septic organisms cannot be deposited through the medium of air. They are, however, deposited in very small numbers and in such isolation that their presence may be discounted. Soiled instruments must be carried home in a separate case, and ungloved fingers must not be permitted to touch the inside of the case. As a further protection my roll has an outer waterproof covering, and this avoids its contamination.

Mr. Sheahan expresses surprise that I have in a recent paper dealing with contracted pelvis given a qualified approval of the application of high forceps. My view in respect to this question has never varied—namely, that an unfixed head is a contra-indication to forceps application, but that in spite of this contra-indication they sometimes succeed in delivering a living child and may therefore be

tentatively used provided all arrangements are made for rapid delivery by some enlarging operation in the event of their purpose not being rapidly attained.

I am, Sir, yours faithfully,

Rotunda Hospital, Dublin. E. HASTINGS TWEEDY.

LEGISLATION IN ANÆSTHETICS.

To the Editor of THE LANCET.

SIR,—In his letter which appeared in THE LANCET of March 26th last Dr. Blumfeld very properly draws the attention of the profession to the proposed amendment by the Council of the Royal College of Surgeons of England to the important legislative recommendations of the General Medical Council in regard to anæsthetics. As Dr. Blumfeld points out, the suggestion of the Council of the College that registered dental practitioners should be permitted to administer certain scheduled anæsthetics for operations other than those of dental surgery would, if carried into effect, bring about one of the very evils which the General Medical Council is endeavouring to remedy—viz., the assumption by those who have received only a partial medical and surgical training of responsibilities and duties which can only be discharged satisfactorily by those who have passed through the full medical and surgical curriculum. I must confess that I am at a loss to understand such a suggestion, and I am glad to observe in the minutes of the meeting of the Executive Committee of the General Medical Council held on Feb. 21st last (p. 25) that this committee was unable to agree to the proposed amendment by the Council of the College.

The following is the resolution passed by the Executive Committee on the occasion of a communication from the Lord President of the Privy Council submitting the amendment proposed by the Council of the College of Surgeons, the "words proposed to be omitted" referred to in the resolution being those used by the General Medical Council in the legislative recommendations they forwarded to the Lord President of the Privy Council restricting registered dentists to the use of certain scheduled anæsthetics in dental surgery:—

> That the Lord President be informed that the words proposed to be omitted were inserted advisedly by the Council, and in the opinion of the Executive Committee it is desirable in the public interest that they should be retained. The Executive Committee would point out that cases may occur in which, during the course of medical or surgical operations, commenced under anæsthesia produced by nitrous oxide or other "specified" preparation, it is found necessary at a later stage to resort to more potent anæsthetics such as chloroform or ether. In such a case it might endanger the patient's safety, and the success of the operation, were the anæsthetist unqualified to administer the latter, as under the legislation proposed an anæsthetist possessed only of a dental qualification would be.

It is a matter for congratulation that the Executive Committee of the General Medical Council have so fully realised one of the main objections to the proposal made by the College of Surgeons in regard to the administration of anæsthetics by dental practitioners. With the other objections Dr. Blumfeld has adequately dealt, and I fully endorse his views. I would lay particular stress upon one of these objections—viz., that under the proposed amendment the risk of general anæsthesia in patients suffering from grave constitutional conditions would greatly be increased. I would point out that it would be distinctly contrary to public interests and to the general spirit of the proposed reforms to expect practitioners who are not in the habit of meeting and treating general medical and surgical conditions clinically to take upon themselves the responsibilities of anæsthesia in general surgery. The vast majority of patients requiring anæsthetics for dental operations are in good or fair health, and though personally I am still of opinion that medical men are the proper persons to administer *all* general anæsthetics to such patients, it must be admitted there is but little risk to life when the safer of these anæsthetics are administered by qualified dentists who are not themselves operating. But if the proposal of the Council of the Royal College of Surgeons were to take effect we should have dental practitioners administering their scheduled anæsthetics to patients of a class totally different from that which in the ordinary routine of their work they are accustomed to meet. As matters now stand, such patients almost invariably obtain the services of two medical men (except in conditions of extreme urgency) whenever a surgical operation has to be performed; and we should be opening the door to a new and unnecessary danger were our legislature to sanction the administration of general anæsthetics to such patients by those who have had little or no clinical experience to guide them. Moreover, *cæteris paribus*, the risk of anæsthesia is undoubtedly less in dental than in general surgical operations owing to the almost invariable preliminary insertion of the mouth-prop—a procedure which is largely instrumental in preventing obstructed breathing.

It is highly satisfactory that, with the one exception in regard to dentists, the Council of the College agrees with the proposals of the General Medical Council, and it is to be hoped that the report of the Departmental Committee, which will, I understand, soon be issued, will be equally favourable to legislation. Whilst many of us hoped that the General Medical Council in their proposals might have restricted the administration of all general anæsthetics to registered medical practitioners and the use of local (injected) anæsthetics to registered medical or to registered dental practitioners, there can be no doubt that their scheme to allow registered dentists to administer certain of the least toxic general anæsthetics in dental surgery is deprived of much, if not most, of its objections by the important reservation that, save in the most exceptional circumstances, the administration of the anæsthetic and the performance of the operation shall not be undertaken by the same individual. There can be no doubt, indeed, that the legislative recommendations of the General Medical Council deserve the unqualified support of the whole profession. They certainly meet the difficulties and requirements of the situation as well as they can be met and if, as I trust, they may shortly become law, a great public service will have been rendered.—I am, Sir, yours faithfully,

London, April 5th, 1910. FREDERIC HEWITT.

ACCIDENT CLAIMS AS AFFECTING THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—I think that most medical men who have had much experience of work in connexion with the Workmen's Compensation Act will agree with Mr. Albert Benthall's strictures on the conduct of a small number of medical men who are constantly in evidence in such cases. These gentlemen are well known to medical examiners for insurance offices, &c. (and, unfortunately, are well known to the workmen also), as prepared to back any claim, *bonâ fide* or otherwise, in court or out of court. Fortunately, for the credit of the profession to which they belong, they are few in numbers, but their power for harm is not to be measured by their numerical insignificance.

Another most important matter is the question of providing special treatment for and, consequently, obtaining a certain amount of control over certain accident cases. It has always seemed to me that the absolute lack of any practical control over the carrying out of the treatment of a case is not fair to the insurance company and the employer. I am afraid that I cannot agree with Mr. Benthall in considering that "the great majority of working-men are honest" when it comes to a question of compensation for injury. I have examined some hundreds of cases annually during the past eight years, and it is my experience that there are very few which are not exaggerated, to say the very least, in some way or another. I think it would be difficult to find any Act of Parliament that has had so demoralising an effect as the one in question. For this result I think the insurance companies themselves are somewhat to blame. What is it that makes an injured man try and drag out his case to the uttermost? Is it the prospect of half-pay—and possibly club money in addition—with nothing to do? I think not. I think it is the prospect of his case being settled by the payment of a lump sum. I firmly believe that this method of getting rid of a case is at the bottom of most of the malingering that goes on. And everything is in favour of the man who is playing this sort of game. Granted that he is genuinely injured, what control is there over him to see that he carries out his treatment? He is probably either a club patient or an out-patient at one of the hospitals, and in neither case can the treatment he can receive be considered satisfactory. In the first instance the most suitable treatment can often not be carried out in his home (even if the man would take the trouble to follow instructions), and in the second because in the bustle and over-work of a crowded

out-patient department he cannot receive the attention that he requires. If he is malingering he stands a good chance of avoiding detection from the same causes operating. It is in such cases (and they are legion) that some control over the patient is necessary. I do not, however, believe that a voluntary scheme would prove a success. The malingerer would naturally refuse to take advantage of it, as would also those who, if not actually malingering, are in no wise anxious to expedite their recovery. I believe that in Germany there is a scheme under which a man has to enter hospital (or place himself under control) after the lapse of a certain time after the injury. I fear there is no present prospect of any such scheme becoming practical in England, but I feel sure that some such method will have to be adopted in the near future.—I am, Sir, yours faithfully,

HENRY J. CARDALE, M.B., C.M. Edin.

Glengall-road, Poplar, E., April 5th, 1910.

THE MIDWIVES ACT AMENDMENT BILL.

To the Editor of THE LANCET.

SIR,—Will you allow me to call attention to a proposed grave injustice to thousands of poor women? At present when a woman in her hour of trial is attended by a midwife the midwife is required by statute to summon a doctor if any complication ensues. No provision is at present made for the payment of the doctor whom the State, not the patient, insists on summoning. This is an injustice to the doctor.

Now the Government proposes (in the Bill just introduced by Lord Wolverhampton) to require the board of guardians to pay the fee (as parochial relief to the woman and her husband). This is a grave injustice to these poor families. The woman and her husband are not paupers, they are not even destitute persons. Through the exercise of thrift they have made for themselves the normal provision for childbirth of their class—i.e., a midwife. The Government proposes to make them compulsorily into paupers (even if they subsequently repay the full amount it makes no difference in this respect); their homes will be visited by the relieving officer with his hated inquiries, often to the detriment (as any nurse or midwife will testify) of the woman's health; they will be liable to be proceeded against by the board of guardians if (as is intended by Clause 17, Sub-clause 2) the "relief" is given "on loan," and compelled to repay a charge which they have never incurred, but which the State in the public interest has chosen to require.

I cannot believe that the House of Lords will choose this moment to thrust thousands of poor women involuntarily into pauperism; or that the House of Commons will think of tolerating such an injustice. When the police call a doctor to attend to a patient in an emergency, the fee is paid out of the municipal funds, and the patient is not thereby made a pauper. The town councils of Manchester and Liverpool are already, with the knowledge and consent of the Local Government Board, following a similar course with regard to the doctors called in by the midwives; and this course is open to any other sanitary authority (under Section 133 of the Public Health Act). There is accordingly no need for the degrading and insulting Clause 17 of Lord Wolverhampton's Bill; and I hope that the Government will withdraw it. I am, Sir, yours faithfully,

BEATRICE WEBB.
(Mrs. Sidney Webb.)

Grosvenor-road, S.W., April, 1910.

THE INDIVIDUAL COMMUNION CUP.

To the Editor of THE LANCET.

SIR,—I would like to ascertain, through the pages and readers of your esteemed journal, whether any cases of contagion have been traced to the use of the "common cup" at Communion table. We are trying to persuade our clerical missionaries to introduce the "individual cup" into the churches out here in China, and I shall be most grateful to anyone who can furnish me with authenticated data on this subject. I am, Sir, yours faithfully,

Peking, China, March 12th, 1910. J. J. MULLOWNEY.

*** The question has been much discussed in our columns, and we refer our correspondent in particular to the letters and articles which appeared in THE LANCET during the latter part of 1900. The measure of the risk depends, of course, upon the sort of community that is in question.—ED. L.

THE PUBLIC HEALTH AND THE PARIS FLOODS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 756.*)

THE Parisians are congratulating themselves on the undoubted fact that never before in its history has Paris been so clean. In dealing with the sewers it has been shown that they were flushed by 30,000,000 to 40,000,000 cubic metres of water per day instead of conveying some 400,000 cubic metres of sewage. From culvert to the roof and under a pressure of 10 metres these sewers were scoured out with a thoroughness that no artificial measures could have effected. The insides of 14,000 houses have been scrubbed with disinfectants under municipal orders, and the dirt and rubbish removed from cellars to courtyards. The fear that the flood would cause an epidemic also engendered a wholesome fever for cleaning among individuals. People who had never before thought of looking into dark corners and recesses underneath staircases, awoke to the danger of such neglect. Old papers, broken furniture, discarded objects of every description in every phase of disgusting disintegration had been pushed into out-of-the-way corners or cellars, there to stay till the floods came and the disinfectors and sanitary and other authorities followed. Never before had these houses been inspected so frequently and by so many authorities. Under this pressure every householder or occupier, whether rich or poor, was seized with the one thought, the one desire—that of cleaning everything. At the Palace of the Elysée, where the President of the Republic resides, the desire for cleaning was made manifest. Passing through the porous subsoil, the waters of the Seine had invaded the Elysée cellars, and even here there was rubbish that had accumulated since the days of the *Coup d'État* or some earlier date. Built for the Comte d'Évreux in 1718, the palace became a gambling hell during the great revolution. It was afterwards inhabited by Napoleon I., then by the King of Holland, and later by his son, Louis Napoleon, when he plotted the destruction of the Republic in 1851. The amount of rubbish stored in the cellars of the vast and historical edifice was enormous, and the chief of the department for the removal of refuse assured me that the clearing of the Elysée was the hardest piece of work the flood had occasioned. No less than ten extra carts, with a capacity of six cubic metres each, had to be employed and much labour and time spent to cart away the many tons of rubbish that had accumulated in the basement of the Elysée Palace.

The scavenging department in Paris is under the control of M. Boreux, Inspecteur-Général des Ponts et Chaussées, who is inspector of what are familiarly called the *boîtes à Pourbelle* (dustbins). Formerly all the household refuse was piled up in the streets at night, but M. Pourbelle, when Prefect of the Seine, compelled each householder to provide portable metallic boxes in which rubbish could be placed in the daytime, and these boxes were to be put out in the street at night ready to be emptied into the collecting carts that go round in the early morning. When once this system had been instituted it became illegal to pile up rubbish on the causeway or road. The fact that all household refuse had to be put in a box certainly helped to keep the streets clean, and it was much easier to empty boxes into the carts than to shovel up the material from the ground. But even when assisted by this sensible system, the daily cleaning of the streets of Paris is a very laborious and extensive task. It has also been made the subject of any number of experiments and speculations leading to the granting of concessions to various companies. As these, for the most part, proved failures, further complications arose, and the municipality had to take over the work which private companies were not able to carry out with sufficient advantage to themselves. Thus actually the domestic refuse from I., VIII., XIII., and XVI. arrondissements belongs to contractors who are owners of works outside the town where the refuse is pulverised and converted into manure. But the carts in which the refuse is conveyed belong to the municipality. On the other hand, the horses belong to, and are fed by, the contractors, though, and as a final complication, they are lodged in municipal stables!

As so many of the outlying districts were flooded it

naturally occurred to me that at the works where the refuse is converted into manure there would be large accumulations of rubbish which the flood would carry away and spread far and wide. There might be some danger in this. On inquiry, however, I found that my apprehensions were 15 years out of date. Formerly all the refuse of Paris was handed over to private contractors, and there was a danger that large quantities might occasionally be held back till the market became more favourable for their sale. Now only the refuse of four out of the 20 arrondissements is thus given over; and, according to the regulations in force, it must be all utilised within 24 hours. The populations in the neighbourhoods of the manure works insisted on these regulations and ensured thereby that no nuisance to them should arise. The Brussels Sugar Convention has had a great share in saving Paris from the danger of the dissemination of manure by the floods, though certainly no one concerned in the treaty foresaw that such a result would ensue. It appears, however, that the pulverised refuse of Paris served mainly to manure the fields where beetroot used in the making of sugar was grown. Now that sugar in France is so much cheaper less beetroot is cultivated, and therefore the pulverising of Paris refuse to make manure for beetroots has been to a large extent abandoned. As a further result a greater proportion is disposed of in destructors, which, if expensive, is certainly the most wholesome process. Consequently, the fact that some of the works where these waste products are utilised were flooded did not cause the scattering about of large accumulations of rubbish. But it was a very serious inconvenience not to be able to send the fresh rubbish to these works as it was collected.

Not only were the means for the disposal of refuse reduced, but the wholesale cleaning, especially of the cellars, caused an immense increase in the output of rubbish. This was divided into three categories: (1) kitchen or food refuse; (2) mud, mineral matter, dust, and the scrapings from cellar walls and floors; (3) old and soiled bedding, furniture, wooden or cardboard boxes or cases, and all manner of things that can be burnt. The first category is the contents of the Pourbelle boxes, and in consequence of the difficulties of communication some of it had to be emptied into the Seine from the Tolbiac bridge to the east of Paris and the rest at the Point-du-Jour on the west side. It certainly was deplorable that any refuse had to be disposed of in this way, especially that some of it had to be shot into the eastern end, but the necessity for such action did not continue for more than a few days, just when the floods were at their worst and the volume of water was enough to dilute anything. The second category, "hard core" is the English technical name, was too voluminous to be put in the Pourbelle boxes. It was mixed with disinfectants, carted away, and emptied into sand-holes and other hollow places that needed filling up. The third category, bedding, furniture, straw, old papers, wood, was first piled up in the streets and then taken to some open space at the fortifications, when petroleum was poured over it and fired. To remove all the mud from the streets, the "hard core," and the "soft core" or garbage, &c., 600 carts of five to six cubic metres capacity are usually employed per day in Paris. But 100 supplementary carts had to be engaged to remove the extraordinary amount of rubbish brought out of the inundated ground floors and cellars. The last figures I was able to obtain show that in 1907 the refuse from Paris amounted to 1,369,997 cubic metres. It will be interesting to know how much this figure has been exceeded this year as a consequence of the floods. The total cost of removing and treating or disposing of this refuse in 1907 amounted to 3,781,893 francs, or 2·75 francs per cubic metre (in round figures and in English money, £151,000, or 2*s.* 2½*d.* per cubic metre), and the population for which this expenditure was necessary was set down at 2,714,000.

The effect of the flood on the working of the great public health services has not proved disastrous; they stood the strain well, and the result has been a general cleansing of the inundated quarters. But have the inhabitants themselves escaped so easily? Fortunately, there are not many inhabitants on the ground floor. In most houses the only persons who sleep on a level with the street are the *concierge* and his family. The rest of the ground floor is generally let out as shops. Without the extra trouble of floods, the house porters were already an unhealthy class, because they are generally lodged in dark, badly ventilated, and small apartments near the main entrance, and giving on to the diminutive backyards of the lofty Paris houses. That these noisome abodes have now been thoroughly cleaned out, and the old furniture and rubbish burnt, will certainly be an advantage. On the other hand, and in spite of fires, these quarters are likely to be damp, especially when the water had remained in the cellar below for some weeks. Here, then, are unwholesome conditions, and it is very probable that the *concierges* as a class will in time be found to have suffered in health. As for the extreme poor living in slums, the floods have been a blessing to them in disguise. So much was this the case that many poor people, especially those belonging to the professional mendicant class, pretended that they were victims, though they did not live anywhere near the inundated districts. The assistance given was so plentiful and easily accorded that many obtained relief who were in no wise entitled to it. Schools, old seminaries, and other places were converted into dormitories, and here the slum-dweller whose house had been invaded by water enjoyed the rare luxury of a bath, a clean bed, and good meals. Many of them thus obtained free quarters for ten or more days, and when finally they went back to their homes in the slums these had been cleaned beyond recognition. The extreme poor, therefore, will have benefited by the floods. The wealthy have the means of taking care of themselves, and, most fortunately, there is comparatively but a small proportion of the intermediate classes in the parts of Paris that were inundated.

It is in the districts outside Paris that the greatest losses and suffering have been experienced. Here most of the houses are small and lightly built. Some of these dwellings were entirely swept away, others were rendered totally uninhabitable. The small city clerk who for years has saved a portion of his meagre salary to buy a little cottage in the country outside Paris has seen all his economies carried away by the flood. Many of this class are just too well off to be relieved by charity, but not well enough off to be able to regard their losses with indifference. Many have returned to inhabit their homes in spite of their dilapidated and damp condition. The little tradesmen have had their stock-in-trade destroyed, and over wide stretches of well-populated semi-rural suburbs the greatest distress prevails; not pauper or indigent distress, but severe financial strain among comparatively well-to-do sections of the community.

Needless to say this seriously affects the position of the medical practitioners established in the inundated country. The Medical Union of the Department of the Seine at once met to discuss what could be done. A resolution was passed that all the funds in the hands of the union should be placed temporarily at the disposal of the medical practitioners who were injured by the floods. It was with sore hearts that this vote was given, for it had required much patient labour to collect, little by little, a reserve fund for the union, and such moneys are much needed for legal expenses or strike allowances when a struggle occurs. However, in the face of so widespread a disaster no sacrifice was too great, and therefore the Medical Union offered all it possessed. Circulars were printed to that effect and sent out to 4000 medical practitioners. A totally unexpected result ensued. A number of medical men, many of them not even members of the union, were so struck by this chivalrous action that they sent donations to the Medical Union, so as to help in the relief of practitioners who had suffered from the floods. On the other hand, these victims, knowing how necessary it was that the Medical Union should keep its funds for the defence of the economic interests of the profession, made no applications to the union for relief. One member only asked to be exempted from the payment of his subscription for the time being. Some wrote relating how all their furniture had been destroyed and nearly all their patients ruined. They therefore did not think the latter would be able to pay the medical fees they owed. Yet these correspondents did not ask for anything. Some described the difficulties of other practitioners, thus pointing out where help was needed, but never asked for anything for themselves. One practitioner explained that he had eight victims lodged in his house, that his gas- and water-supply were stopped, and his closets were not in working order. Several practitioners wrote not to make demands for help, but to offer to take charge of the children of other medical men less fortunate than themselves. It may be said that the work of

relief by rights appertained to the Association Générale de France, for it is a purely benefit society, and has a very large membership; but like these old-established institutions it is slow to move. It has its routine system of assisting the widows of medical men and various cases of exceptional distress among members of the profession, but it is too ponderous a body to be able to move in response to a sudden, unexpected emergency. The fighting unions alone had the youth and energy necessary to rise to the occasion. The floods came just as the annual bills had been sent in by most of the practitioners, and the greater part of the work they did last year has not been paid for, and some of it never will be. It will add to the distress in some of these outlying districts that several practitioners have determined to leave, but they cannot afford to remain in a place where all the likely clients have been ruined.

I make no attempt to describe the varying conditions in the suburbs affected, but the district within that loop of the Marne which encircles the commune of St. Maur was the subject of interesting treatment. Here the mayor at once divided his commune into 16 sub-districts, and appointed a committee for each of these divisions consisting of at least one medical man, one architect, and one municipal councillor. The mission of these committee men was to see that the instructions issued by the Paris police were duly carried out. They therefore had to visit every house and report if it had been disinfected, and see if it was properly disinfected. Only after this had been done did they give the necessary written sanction allowing the owners or occupiers to re-inhabit the houses examined. Disinfectants were provided gratuitously at the town hall, and chemists came from Paris to help. Practically no resistance was offered, though at least a quarter of the houses were flooded. The loop of the river Marne is very pretty at this point, and the inhabitants seek to live near to the water's edge. Altogether there are seven miles of river front, and naturally the villas close to the water were flooded. There are no extreme poor here, and much of the furniture was too good to be destroyed. This was particularly the case in regard to the wool and horsehair or spring mattresses. Fortunately, behind the town hall there happened to be an unoccupied factory, and here 2800 mattresses were disinfected. The owners had to throw buckets of water upon the mattresses, and scrub and wash the outside. Then a municipal service of carts came to fetch the mattresses and placed them in one of the rooms of the empty factory. Here there were large *brasseros*, like those which are lighted on the terraces of cafés so that customers may sit out in the open air during cold winter months. When the mattresses were dried they were taken to another compartment which had been rendered airtight and 30 grammes of formalin per cubic metre of space were evaporated by heat. The mattresses were first partially unsewed so as to facilitate the penetration of the gas. After being thus disinfected the mattresses were carried to a third room, where as many draughts as possible were created to free them from odour. It was undoubtedly an excellent precaution to disinfect on so extensive a scale, for the whole district drains into cesspits. The older cesspits are not watertight, and they caused no visible nuisance, but the contents of the watertight cesspits came out for the most part in the flooded gardens. Some of the one-storey houses had the water up to their roofs, others had four and five feet deep of water in the sitting-rooms. The fugitives went to the schools, which were quickly converted into dormitories; the greater part of the children were sent some distance away into the country, where they were generally received as guests by people who were glad of an opportunity to render some service.

It will be seen from the above that the mayor of St. Maur acted with commendable energy and made good use of the local facilities available. But the Government could not be certain that this would be the case in the 32 communes round and about Paris which had suffered from the floods. Therefore special decrees were issued from Jan. 28th to Feb. 16th by the sanitary departments of the Ministry of the Interior and of the Prefecture of Police bringing the authority of the Central Government to bear upon the local municipal or communal administration. Not only were the mayors told what should be done, but special inspectors were appointed to watch over the local authorities and see that the instructions given by the Government and the Prefecture of Police were duly carried out. Thus, it will be seen, very little was left to chance. This, however, will not, and could not, prevent the destruction wrought by the waters, nor the poverty, the mental strain, and anxiety that such a disaster must occasion. The danger that a widespread epidemic would ensue has been met and, there is every reason to anticipate, successfully warded off. But there may be an increased sick-rate and death-rate from ordinary causes due to the weakening, the depressing effects of the trouble which has befallen so many people. The vital statistics of the inundated districts during the next few years will be of special interest, but with the early advent of the spring and summer sun to complete the process of drying the houses we must hope that but little further harm will accrue.

VARICOCELE AND THE PUBLIC SERVICES.

(BY A SPECIAL CORRESPONDENT.)

IN a leading article in THE LANCET of March 26th (pp. 869–870) a plea was put forward that "varicocele should not of itself be a cause of rejection of candidates for the Services who are otherwise suitable, and candidates should never be advised or required to submit themselves to operation for its cure." With regard to the first part of this plea, it may not be generally known that quite a number of recruits are rejected annually for the army on first inspection as suffering from varicocele. The accompanying table,

Year.	Total recruits inspected.	Rejections for varicocele.		Rejections from varicocele within 3 months of enlistment.	
		Actuals.	Ratios per 1000.	Actuals.	Ratios per 1000.
1900	84,402	946	11·21	20	0·24
1901	76,750	1066	13·89	43	0·56
1902	87,609	1103	12·59	84	0·96
1903	69,553	908	13·06	26	0·37
1904	70,346	1158	16·46	21	0·30
1905	66,703	1117	16·75	26	0·39
1906	62 371	797	12·78	7	0·11
1907	59,393	678	11·42	5	0·08
1908	61,278	761	12·42	7	0·11
1909	Figures not yet available.				

compiled from the official returns of the last ten years issued to Parliament by the Secretary of State for War, shows very plainly the importance of the questions which have been raised. For instance, in the year 1904 out of 70,346 recruits medically examined for the British army no less than 1158 were rejected on first inspection as unfit from varicocele, giving a ratio per 1000 for this condition alone of 16·46. In the ten years period between 1897 and 1906 of 712,309 recruits medically examined, 9524, or a ratio per 1000 of 13·37, were rejected on first inspection, and 257, or a ratio of 0·36 per 1000, were rejected within three months of enlistment as medically unfit for the service as suffering from varicocele of sufficient degree to interfere materially with their proper performance of military duty. In 1906 the army medical authorities, apparently realising that the importance of varicocele had been somewhat over-estimated in the past, began to take a more lenient view of its presence. A definition of what they termed a "standard" for varicocele was formulated. In 1907, as a result of this standard, the rejections for the disability in otherwise suitable recruits became reduced to 11·42 per 1000 of men inspected, and at the same time the ratio of discharges from the same cause within three months of enlistment fell to 0·08 per 1000. These facts seem to prove that the importance of the disability was formerly over-estimated. In 1908 there was also a slight diminution in the number of rejections as compared with those that occurred in 1906; the figures for 1909 are not at present available.

The admission of soldiers with varicocele to the ranks of the army has, however, real difficulties. No defect is more useful to an unwilling soldier who wishes to evade his duty, especially a "fatigue" or a "route march," than a varicocele. He has only to report sick and complain of pain in the region affected and be sent before a military medical officer, who cannot state definitely that the

pain complained of does not exist, and must of necessity excuse the man performing the work allotted to him, as otherwise an injustice may be inflicted. The mere size of a varicocele is very little guide as to the probability of the pain being really there. Again, instances still occasionally occur in recruits in which the men plead the presence of a varicocele as rendering them unable to carry out their drills and preliminary training gymnastics, &c., and refuse remedial operation. If such duties are excused or modified these men when they become trained soldiers fall back on this their old excuse and continually ask to be excused fatigues, and if so excused an injustice is done to their comrades by increasing the proportion of the harder duties of the latter. For these reasons it seems worth considering, if recruits are to be passed into the Army suffering from varicocele, whether it would not be well to stipulate for their consent at a later date to operative treatment should it become necessary. This could only be done when accepting recruits, and the fact of their agreeing to it would prevent malingering. It may be noted in passing that there is a widespread belief amongst the classes of the population from which recruits for the army are drawn that even a small varicocele produces impotence, and so a demand for operative treatment has been prominent in young men about to enlist on this account and not because the condition causes any pain.

Coming next to consider the question of the prevalence of varicocele amongst serving soldiers the following statistics have been compiled from the official blue-books. Adding together the average strengths of the European British troops of the regular army serving in all parts of the world, we find the army in 1907 consisted of 225,266 men; of these, 118,429 were admitted to hospital during the year for treatment, and of the latter 2635 were finally invalided from the service. Of the admissions to hospital 214 were cases of varicocele, and of these but 2 were finally discharged from the army as unfit for service. The corresponding figures for 1908 show that of an average strength of 223,774 European British troops of the Regular Army 121,388 were admitted to hospital; of these, 2310 were eventually invalided, and of those admitted to hospital 311 were treated for varicocele, of which 5 were finally discharged from the army as medically unfit. In 1908 out of 2797 operations carried out at all stations excluding India, 178 were operations for the relief of varicocele. In India for the same year 38 cases of varicocele were operated on. As the effects of climate have been stated to favour the production of varicocele it may be of interest to quote the proportionate occurrence by commands. In 1907, of the 214 cases of varicocele above noted, 139 occurred in the United Kingdom (average strength 118,521), of which 2 cases were finally invalided. Mediterranean Command, 10 cases out of an average strength of 15,611; South Africa, 8 cases (average strength, 15,474); India, 50 cases (average strength, 69,332). Other commands, 7 cases (average strength, 6328). In 1908 corresponding figures for the United Kingdom show 192 cases of varicocele, of which 5 were finally discharged as unfit for army service out of an average strength of 118,474; Mediterranean command 18 cases (average strength, 15,548); South Africa, 7 cases (average strength, 14,075); India, 85 cases (average strength, 68,522); and other commands 9 cases (average strength, 7155). From consideration of these figures it appears that varicocele when it develops in serving soldiers causes but very little wastage, and if the crux of malingering be got over by making it understood that those who suffer from their varicoceles will have to be relieved by operation, there appears no valid reason why candidates for the ranks should *per se* be rejected for varicocele alone. In no case, however, where the condition is associated with varicose veins of the legs or piles should it be lightly looked upon.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol: the Coat of Arms.

A SKETCH of the design which has been prepared for the University coat of arms has been published. It combines the ship and castle of the City of Bristol with the arms of Colston, Wills, and Fry. The heraldic description is as follows:—"Argent on a Cross quadrant Gules, a representation of the Arms of the City of Bristol (with the consent of the Lord Mayor, Aldermen, and Citizens), between impale a Sun in splendour and an Open Book proper leaved and clasped Or, and inscribed with the words 'Nisi Quia Dominus,' and in fesse to the dexter a Dolphin embowed, and to the sinister a Horse courant, both of the third." Beneath the shield, upon a scroll, is the motto "Vim promovet insitam."

Tropical Medicine.

The University of Bristol has appointed Dr. A. J. M. Bentley to deliver a series of 12 lectures on tropical diseases in the buildings of the Faculty of Medicine for senior students and qualified practitioners. In many respects Bristol would be a good centre for the establishment of a tropical school, and possibly the response to the present step may be of such a nature as to warrant further progress.

Gloucestershire Royal Infirmary and Eye Institution.

The annual meeting of the subscribers to the Gloucestershire Royal Infirmary and Eye Institution was held on March 31st under the presidency of Colonel Curtis Hayward. The medical report showed that during 1909 the in-patients numbered 1591, and 9051 out-patients were treated, both of these numbers being in excess of any previous record. The financial statement showed the income amounted to £7024, the expenditure was £7744, and the deficit on the year's working was £720. The chairman stated that with the object of increasing their income a league had been formed in order to bring the claims of the charity before the public.

Somerset County Education Committee and the Eyesight of School Children.

At the last meeting of the Somerset education committee it was decided, owing to the large number of children whose eyes had to be examined, to supplement the work of the ophthalmic school medical officer (Dr. J. H. Bendle) by the appointment for three months of a qualified medical assistant. The salary will be £100, in addition to travelling and out-of-pocket expenses.

Didworthy Sanatorium, Devonshire.

The annual meeting of the subscribers to this sanatorium was held last week under the presidency of Dr. R. Hogarth Clay. The medical report stated that during 1909 133 patients had been treated. 102 patients were discharged during the year; of this number 50 per cent. were "much improved," and 21 per cent. "very much improved." The sanatorium has 35 beds, and the cost of three months' treatment has now been fixed at £18. Several beds are maintained by local authorities at a cost of £70 per annum. The committee urges the importance of sending incipient cases of pulmonary tuberculosis, and states that during 1909 only 17 cases were admitted in the earlier stage. The report states that the scheme of receiving certain patients for one month for educational treatment has been continued.

Royal Cornwall Infirmary, Truro.

The male patients of the Royal Cornwall Infirmary have a convalescent home provided for them at Perranporth but the female patients have none. The want of a convalescent home for the women has been much felt, and Mr. T. L. Dorrington has promised £1500 for the erection of a suitable building. The committee of the infirmary thinks that the home could be furnished for about £200, and that the total annual expenditure would be about £200. It has been decided to call a meeting shortly to consider the generous offer of Mr. Dorrington.

Proposed University Settlement.

A committee has been formed, representing every faculty and every type of University member, to promote the formation of a university settlement. In a circular note the committee states that the aims of such a settlement would be, first, to promote the general welfare of the neighbourhood in which it is situated; and, secondly, to provide a centre for the systematic study of social and industrial conditions. The committee is of opinion that the settlement should include a residence for women under a warden, with library, and lecture- and club-rooms for both men and women workers. The increasing importance of training experts in social work is alluded to and the sympathy of students is asked for. The initial outlay would be about £1000 and the annual cost of maintenance about £300. No appeal has been made as yet, but £220 have been promised towards the initial outlay, as well as some annual subscriptions.

April 5th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool's Decreasing Death-rate: Medical Inspection of School Children.

THE deaths registered in Liverpool during the week ending March 26th numbered 264, equivalent to an annual mortality of 17·8 per 1000. At the corresponding period of last year the deaths numbered 374, representing an annual mortality of 25·5 per 1000. The chairman of the health committee at the last weekly meeting remarked that the returns for the first quarter of this year were now almost completed, and they constituted the lowest quarterly death-rate on record for the city. The medical officer of health, Dr. E. W. Hope, replying to the query whether the medical inspection of school children had any influence on the death-rate, said that it was a very valuable help. Everything of that kind contributed to the health of the city.

Lancashire Inebriates.

The quarterly meeting of the Lancashire Inebriates Acts Board was held at Preston on March 23rd. The chairman said the fact that 60 per cent. of the women still sent to the reformatory were mentally defective demonstrated the hopelessness of expecting the three years' detention to effect a cure. Reform in such cases was practically an impossibility, and this should be taken into consideration by those critics who delighted in advertising the apparent failure of the system. All that they could do was to ensure that during the term of detention, at any rate, these unfortunate women should be looked after, provided with healthy and useful employment, and prevented from being a source of disorder and social contamination to the rest of the community. The net proceeds of the industrial occupations of the inmates were £1054, and this amount was almost sufficient to pay for the cost of their food, which amounted to £1076; while in spite of having reduced the charge for maintenance to Lancashire committing authorities to 5*s.* 3*d.* per week per patient, there was a larger balance in hand at the end of the year than at the beginning.

The West Derby Guardians and Medical Appointments.

At a meeting of the West Derby board of guardians held on March 23rd a motion was proposed to the effect "that in future no applicant for an appointment under the board who was a member of the board, or who had been a member of the board within a period of six months, shall be eligible." The proposer of the motion said that at the present time there were eight medical men in the service of the union who had been guardians, and he thought that such appointments were looked upon with disfavour by the outside public. There were now no medical men on the board who were likely to apply for a position under the board, so that was an opportune time to bring forward such a proposition, which he did not think anyone could object to. The motion was duly seconded, and, after discussion, was carried unanimously. It is only fair to say that no reflection rests upon those gentlemen who had taken advantage of the present state of the law on the point, all of whom are carying out their duties in the most satisfactory manner.

April 5th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Queen's University of Belfast.

THE first meeting of Convocation is to be held on April 16th, and in the notice issued to convene this meeting the secretary of the University gives extracts from the statutes to the effect, among other matters, that "at an ordinary meeting Convocation may discuss and pronounce an opinion on any matter whatsoever relating to the University." The agenda for the meeting are: (1) the election of a chairman and deputy chairman; (2) drafting of standing orders to regulate procedure; and (3) any other business. A most important circular has been issued to the graduates from a very influential body of graduates in arts, medicine, engineering, and law, who, as they say, "met to consider the present situation," and who append their names, with the Right Hon. Thomas Sinclair, M.A., as chairman, and Mr. J. W. Storey, B.A., as honorary secretary, urging that it is of vital importance that every graduate who has not already done so should without delay send forward his name for enrolment as a member of Convocation. In this circular it is pointed out that in four years from next November, Convocation will elect eight members on the Senate, and that, in the event of a vacancy in the chancellorship, it elects the new Chancellor. It is clear that the members of Convocation are determined to exert a very important influence on the life and administration of the University, and it is of the greatest importance that a man of "light and leading" should be elected chairman. It is hoped that matters will be so arranged that there will not be that friction between Convocation and the University of Belfast as occurred in the case of the late Royal University of Ireland, and it may need the most careful generalship on both sides and a good deal of give and take to prevent this occurring.

Nursing in the Belfast Workhouse.

To the great credit of the Belfast board of guardians it has substituted paid for pauper nursing, so that now the Belfast workhouse infirmary forms a great school for the training of nurses, but the expenses in salary and maintenance have become so formidable that the guardians have been discussing the desirability of such changes as would effect a considerable economy without prejudicing efficiency. The new system of nursing began 26 years ago. In 1899 the staff consisted of 94 nurses and probationers, and the annual cost amounted to £3357. There were also 17 paid attendants, costing £835, the total cost being £4192. There were at the same time 224 pauper attendants in the infirmary and 32 in the fever hospital. In 1903 the guardians wisely decided to dispense with the services of the pauper assistants in the infirmary, and the number of nurses was increased to 137, and in 1908 (owing to the nursing staff at the Abbey being increased to 26) to 185; and when the new Dufferin Hospital for Children was opened in 1909 the number of nurses was again augmented to 193, and the cost increased to £6969. At present there is one nurse to about ten patients in the infirmary, and one to less than five patients in the hospital. More thorough classification of the patients has taken place, new departments have been added, but it is difficult to see how any reduction in the expenditure for nursing can be made unless to the distinct disadvantage of the patients.

Health of Belfast.

At a meeting of the city corporation held on April 1st it was reported that between Feb. 20th and March 19th there were 118 cases of infectious disease notified—viz., 8 cases of enteric fever, 59 of scarlet fever, 2 of simple continued fever, 1 of puerperal fever, 17 of diphtheria, 1 of membranous croup, and 30 of erysipelas. There have also been notified 110 cases of pulmonary tuberculosis. The average death-rate from all causes was 21·0, 2·2 from zymotic diseases, and 7·5 from chest affections. The number of cases of infectious disease notified is greater than in the previous month or in the corresponding period of 1909, numbering 118, as compared with 88 and 73 respectively. The increase (as compared with the preceding month) applies to all notifiable diseases except puerperal fever, and is most marked in the case of diphtheria (17 as compared with 5), enteric fever (8 as compared with 4), and erysipelas (30 as compared with 21). There is a slight increase in the number of cases of scarlet fever, the number notified being 59, as against 54 in the preceding month. There is also an increase in the number of notified cases of tuberculosis of the lung, the number being 110, as compared with 79 in the previous month. 49 deaths were registered from whooping-cough, as compared with 10 in the same period of 1909. The high zymotic death-rate was due to the prevalence of measles and whooping-cough.

The Belfast Hospital for Sick Children.

A new convalescent home, in connexion with this hospital, was opened on April 2nd at Carrickfergus in a most pleasantly situated district in the neighbourhood of Belfast. Already eight beds have been provided, and it is hoped that funds will be forthcoming to provide more.

Beri-beri in Belfast.

On the night of April 1st a ship arrived in Belfast Lough from Rangoon with more than half the crew of 16 hands

prostrated with beri-beri. Even those still nominally fit for duty were so weak that they were unable to stand upright to haul on the ropes. The disease showed itself weeks ago, but the attack in most cases was so mild that the sailors were able to stand to their watches. Nine of the sufferers have been conveyed to the Union Hospital for treatment, but one man died shortly after the ship arrived in the Lough. The crew are all Danes or Norwegians, most of them being men in the early "twenties." The ship has been thoroughly disinfected.

Ventilation of Sewers in Belfast.

The medical officer of health and the executive sanitary officer have, as requested by the public health committee of Belfast, reported jointly on the question of the ventilation of sewers, and the use is recommended of tall shafts, not less than 9 inches in diameter, combined with surface ventilators, suitably placed, as the best method of ventilating Belfast sewers. It is suggested that these should be provided at the time of the laying of the sewers, and that all old and defective sewers should be re-modelled and air-shafts provided where required; sewers with steep gradients should have air-flaps provided so as to regulate the position in which the sewer air should be discharged. Reports from Professor St. C. Symmers and Dr. W. J. Wilson (lecturer on hygiene) are also appended. Dr. Symmers said that he had suspended agar plates for five hours in ventilators in certain localities named, and from all certain bacteria were obtained, being mostly cocci of the staphylococcus albus variety, and also a few colonies of the colon bacilli, as well as moulds and a large number of germs of the subtilis class. These bacteria, Professor Symmers reported, are not pathogenic to any well-known extent, but the mere fact that bacteria are rising in the exhalations from these ventilators is important as indicating a possible source of disease, for it is evident that if harmless germs can thus escape from the sewers disease germs when present may also pass into the air of the streets. This question of ventilation of sewers is interesting, as when the matter was brought before the Belfast Health Commission it seemed as if scientific medical opinion regarded sewer-gas of little importance as a carrier of disease germs.

April 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The French Congress of Medicine.

THE Eleventh French Congress of Medicine will be held at the Paris Faculty of Medicine on Oct. 13th, 14th, and 15th next. The officers of the congress are: Professor Landouzy, president; Professor Balzer and Professor Troisier, vice-presidents; M. Marcel Labbé, general secretary; M. Laignel-Lavastine, assistant general secretary; and M. Masson, treasurer. The following subjects, suggested by the previous congress, will be brought before the meeting by selected speakers: bradycardia, the treatment of symptomatic epilepsy, and the pathological relations of the liver and spleen. The following questions will be placed on the programme for discussion: mishaps in serum treatment, acute cerebro-spinal meningitis, tuberculin treatment, and diseases of the pancreas.

Impure Air and Putrid Emanations.

At a meeting of the Academy of Sciences held on March 14th M. Laveran presented for M. Trillat and M. Sauton of the Pasteur Institute a memoir showing that atmospheric air, when contaminated by the ordinary emanations of putrefaction, thereby acquired properties favourable to the existence of such pathogenic germs as might be suspended in it. M. Trillat and M. Sauton proved this experimentally by exposing bacilli of diphtheria, of typhoid fever, and of plague to the action of ordinary air containing gaseous emanations derived from putrid animal or vegetable matter. It was found that in certain cases not only was the life of the microbes prolonged, but there was a renewal of the vitality of some which had previously undergone attenuation to such a degree that they were no longer capable of growing in ordinary culture bouillon. M. Trillat and M. Sauton considered that these phenomena, manifested in the presence of putrid emanations, were in accordance with the general law that antiseptics when in small quantity had an intensifying action. From the hygienic point of view this idea is worthy of record, for it shows that respirable air may by the presence of gases of putrefaction be rendered favourable to the vitality of infective germs.

Leave of Absence for School Teachers before and after Childbirth.

On March 18th a law was passed granting to female school teachers about to become mothers a special leave of absence of two months with full treatment, one half of the leave to be taken before the birth and the other half after it. This period shall not include sick-leave. The teachers shall not return to duty until they have been medically examined and certified to be fit for work without danger to their health, and if a prolongation of the leave is necessary for this purpose it shall be granted.

"L'Agrégation de Médecine."

March 23rd was the last day on which medical men could enter themselves as candidates for the *concours de l'agrégation* to be held on May 23rd. An interval of 18 months will then have elapsed since the last competition of this kind, which took place in December, 1908. It remains to be seen if the disorderly scenes of that period will be repeated. On the present occasion there are only about 100 candidates. It is known that the majority of the great medical societies look unfavourably both on the forthcoming competition and also in a general way on the system of *agrégation*, but, on the other hand, the Société de l'Internat has by 103 votes against 19 declared itself opposed to the suppression of the *agrégation* and its replacement by the system of *privat-docenten*. The Medical Students' Union, which in 1908 supported the opponents of the *concours de l'agrégation*, seems now to take no great interest in the controversy.

The Congress of Physiotherapy.

THE LANCET in its last number announced the opening of the Congress of Physiotherapy. Its sittings lasted throughout the week from March 29th to April 2nd. There was a good number of foreign visitors to the congress. The great success of the congress was the exhibition which had been organised in an admirable manner by Dr. Albert-Weil in the Faculty of Medicine, who succeeded in making it thoroughly representative of all the subjects that came within the range of the congress. Indeed, one cannot help regretting that such an admirable exhibition is destined to be dispersed after such a short time of existence. There were on view a series of exhibits organised by the climatic stations and watering-places, and exhibits of electrical apparatus. The radiological section included a very fine historical collection which deserved examination piece by piece. The Association of Antituberculosis organisations showed a model of the Bligny Sanatorium and wall pictures representing the sanatoriums of Champrosay, Hyères, and charts illustrating the Association for Preserving Children against Tuberculosis, and the work of the Siegfried-Robin Antituberculosis Dispensary. The social festivities included a gala performance of "Aida" at the Opera, and a dinner at the Elysée on April 2nd.

The Lannelongue Medal.

Professor Lannelongue has just informed the Paris Surgical Society by letter that he has founded a prize consisting of a gold medal to be awarded every five years with an endowment of 5000 francs. The medal will be open to surgeons of all nationalities who shall have made during the preceding ten years the most important surgical discovery or the most useful investigations in the science and art of surgery. The medal, however, is not to be given twice running to men of the same nationality. M. Lannelongue expresses the formal wish that the awards shall be absolutely independent of nationality, and given solely upon the merits of the selected competitor. Amongst the members of the committee charged with its award will be men of ten selected nationalities, two at the most from each. The medal will be awarded to the candidate who shall obtain more than half of the total number of votes, or failing that, a relative majority over every other candidate. The medal will be awarded at the annual meeting of the Surgical Society of Paris.

April 5th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Care of the Feeble-minded.

THE Austrian Society for the Care of the Feeble-minded held its fourth annual conference in Vienna on March 22nd and 23rd, and the proceedings were of considerable interest to physicians as well as to teachers. The conference was not concerned exclusively with questions of therapeutics, but took up all problems connected with the general treatment, education, and after-care of feeble-minded persons of all ages. The opening address by the Minister of Education, Count Stürgkl, pointed out that it was the duty of society to do whatever might be possible for improving the condition of feeble-minded children. Schools for them had therefore been opened and would soon be increased in number to such a degree that these persons could be made comfortable without their infirmities being unnecessarily brought before the general public. One of the chief points in this scheme was the training of specially qualified teachers who could deal with these defectives better than parents could. Dr. Danziger, in a paper on the distribution of institutions for the care of feeble-minded persons, said that in the eastern part of the empire such institutions did not exist. Professor von Taueregg read a paper on Cretinism, in which he showed that in very many instances this condition was associated with maldevelopment of mental and moral qualities. He said that the administration of thyroid extract would work wonders, and if proper teaching was available persons originally helpless became easily capable of partially maintaining themselves by their earnings; for this, however, it was essential that there should be coöperation between medical men and teachers. An interesting paper, by Dr. Havorka, entitled "The Later Fate of the Feeble-minded," was read on the first day. His observations related only to persons who had since childhood been cared for in special homes and institutions. He said that the majority (55 per cent.) of these patients had to be transferred to lunatic asylums. About 30 per cent. were able to enter a school where the standard was higher, and there they were taught to do certain work, but as soon as they returned to their parents their mental condition deteriorated as a rule. It was therefore safest to keep such persons always in one of the higher institutes. The remainder of the children either died or found their way to the infirmary. A paper on Deaf-mutes was read, in a portion of which it was stated that such individuals were very often able to earn a tolerable livelihood without becoming much of a burden on their family and friends. In this country oral teaching is the rule in all schools for deaf-mutes, and the results are excellent if there is at least a remnant of hearing to build upon. In absolute deafness for noises and vowels the results are not so satisfactory, but even these unhappy persons may find suitable work. The progress made in the education of feeble-minded persons during the last 25 years in this country was well illustrated in a paper by Professor Spitzy. Whilst at the beginning of the before-mentioned period such persons could not be admitted into any public institution, there was now in each large city at least one school for them. It has been found that the disturbances of coördination form one of the most serious obstacles to bodily education, therefore teaching and occupation must be approximated as much as possible to the ideal of training this sense. At present in every school a search is made for symptoms of feeble-mindedness amongst the children. Various legal questions, relating to the subjects of marriage, inheritance, and exemption from military service, were discussed towards the conclusion of the conference.

The New Director of the Gynæcological Clinic.

The new clinic for gynæcology and obstetrics, which has been in use for only the last two years, had for its first director Professor von Rosthorn, whose appointment was received with so much pleasant expectation by the students, but he died after holding office barely one year. And it took another year before a successor for him was found in the person of Professor Wertheim. The new director has been a pupil of and assistant to Professor Schauta and Professor Chrobak, the leading Austrian gynæcological surgeons. Early in his career he turned his attention to the problem of cancer, and he worked out a method of treating malignant disease of the uterus which has become known all over the world as holding out some promise of success, if not undertaken too late, as permanent recovery is said to be probable in 60 per cent. of the cases operated on. Professor Wertheim, who is only 44 years of age, has also worked a good deal on the subject of puerperal sepsis, and is one of the surgeons who form what is here termed the "young Vienna school." He is very popular with both students and graduates, and his operating theatre in one of our suburban hospitals is always filled with foreign visitors, intent on watching his methods.

Questions of Paternity Decided by the Wassermann Reaction.

At a recent meeting of the Vienna Gesellschaft der Aerzte Dr. Hochsinger showed two infants, respectively three weeks and three months old, who gave a positive response to the Wassermann reaction and presented unmistakeable signs of congenital syphilis. Both the mothers and their husbands absolutely denied ever having suffered from syphilis, and the Wassermann test was negative in all four persons, but on being repeatedly pressed with inquiries both women confessed that they had been impregnated extra-maritally. Both of these unacknowledged fathers of the children on being afterwards examined showed a positive Wassermann reaction and they admitted having had syphilis. Here, then, was an explanation of the curious fact which is sometimes observed that a healthy child may be born between two syphilitic children. Dr. Matzenauer pointed out that such things happened, and he explained it by the theory that only maternal syphilis was transmitted to the fœtus and that disease of the placenta, which was the means of transmission, sometimes did not occur. Dr. Hochsinger's observation is extremely valuable on account of the light which it cast on the etiology of such cases. The negative result of the Wassermann test in the mothers was not surprising, since this test is sometimes known to fail, especially in the case of women during, and shortly after, pregnancy.

April 4th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending Feb. 19th show 18,922 deaths for all India and Burma as compared with 15,286 for the week preceding. The Bombay Presidency reported 1116, Bengal Presidency 1966, the United Provinces 7420, the Punjab 3762, Burma 395, the Central Provinces 1693, and Rajputana 2471.

Children's Eyesight.

At a meeting of the Bombay corporation held recently the important question of the examination of children's eyesight in municipal schools was raised. The very necessary precaution now in progress in the United Kingdom whereby the school children are subjected to medical examination was referred to, and it is hoped that the Government of India will initiate a movement on similar lines in Indian schools. Some two or three years ago the military authorities in India detailed certain specialist officers in ophthalmology to visit all the army schools and examine the eyesight of soldiers' children who attend these institutions, and the results obtained were distinctly encouraging. Orders were issued that children with defective eyesight should have suitable glasses prescribed. In the case of army schools sanction was given for their improved lighting as funds became available. The principle to be observed in carrying out this was that the chief source of light should come from the north, subsidiary lighting to be by clerestory windows. Whenever possible buildings were to be built east and west, and when this was done the verandah roofs and sunshades were to be omitted on the north. The total glass area was never to be less than one-tenth the floor area. Areas under verandah roofs or shades were to be taken as seven-tenths of the actual area. The under surfaces of verandah roofs covering windows and of sunshades were to be painted white. The types of school books and atlases were inquired into, and those in which the type was too small were directed to be replaced by more suitable ones. New patterns of adjustable desks were approved, and their introduction ordered as funds became available.

The Coonoor Hospital.

The plans of the new Coonoor Municipal Hospital have been completed, the old hospital being unsatisfactory as far as accommodation was concerned, the wards being scattered over a large area and communication being difficult in the monsoon rains. Major R. Bryson, I.M.S., the superintending medical officer, has conferred a great boon on the public by his energy in helping to acquire a new site and putting matters in train for the erection of an efficient institution; the plans and estimates are now complete and are about to be laid before a general meeting. The Coonoor Municipal Hospital is quite a popular establishment, and the superintendent as well as his subordinate staff have carried out their work well with due regard to the wants and requirements of those upon whom they attend.

The Medical Officer of Health, Madras Corporation.

In consequence of the decision of the Government of India that an officer of the Indian Medical Service shall not in future hold the appointment of medical officer of health of Madras city, the post being thrown open to private practioners holding a Diploma in Public Health, Captain T. S. Ross, I.M.S., has been transferred from his present appointment as health officer to that of resident surgeon, Madras General Hospital.

The Water-supplies of Barracks.

The want of water laid on to some of the soldiers' barrack-rooms by a proper system of pipes is one of the most serious defects in military sanitation in India. In some cantonments, however, an excellent supply has been provided from standpipes in the vicinity of the lines, but the good effect is greatly lessened by the carriage of the water from these places either in the insanitary *mussacks*, or leather bags, used by the *bhistis* (native water-carriers) or by buckets which are used by the soldiers themselves when available. The water is stored in the barrack-room verandahs in galvanised iron receptacles which are never sterilised, and in some stations the lids which are supposed to be kept locked are often unprovided with locks. These tanks have a tap at the bottom, and as the flow from this is often too slow for the thirsty soldier he raises the lid and dips in his water-bottle or other vessel from above and contaminates the main supply.

March 18th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Practice in Australia.

CORRESPONDENTS from time to time ask for information and advice regarding practice in Australia. It is somewhat difficult to generalise about the conditions of a continent which stretches from south to tropical north, but it may be said that Australia presents no very special inducements for general practice and has some special drawbacks. The population of Australia is increasing very slowly, and the supply of home-trained medical men grows very rapidly. The Universities of Melbourne, Sydney, and Adelaide are turning out between 50 and 80 graduates every year and the numbers are not decreasing. It is natural that in the matter of public appointments the native practitioner considers he has a prior claim, and although he is not always preferred the proportion of home-filled posts is steadily growing. The practitioner coming from Europe or Great Britain would find the main difference in the amount of the fee, but there are compensating expenses. There are three broad classes of general practice in Australia. First, comes the practice in the large cities, which does not differ from similar work in the old world; next, practice in the country towns, to succeed in which to any great extent requires a good general acquaintance with operative surgery. Those practitioners not doing surgery may make a livelihood, but surgery is the factor that gives prominence to their colleagues. In Victoria especially, and in New South Wales in a lesser degree, most towns of any size are railway towns or within reach of a railway. In Queensland and South Australia this does not apply to so great an extent. The third class of practice is the little hamlet with a large outlying district, the true "bush" practice. There are many considerable incomes earned here, but the conditions of living are found almost insupportable by many sensitive and cultured natures, and the work is hard and trying. The workers of such practices rarely remain very long in one spot. Other drawbacks of country practice in Australia besides its frequent loneliness are the need of liberal and speedy means of transport, and in some States a trying climate. Any practitioner coming from the old country must expect, therefore, to find the conditions of success much the same in Australia as elsewhere. In speaking of buying practices in Australia a special warning should be given that such a procedure is always more of a speculation than an investment. The public are used to frequent changes of resident practitioners and it is rarely that any man can promise a succession of interest except in appointments, and even here the sequel is often disappointing. Practices are, of course, bought and sold daily, but the basis of valuation is nothing like so high as in the old country. Broadly speaking, anyone who is steady, self-reliant, and well qualified (it has to be remembered the Australian universities are turning out very highly-trained men) may expect to succeed in Australia to the extent he would succeed anywhere else, with the addition that in Australia his income would be somewhat larger. Unless some special circumstances influence particular cases it would certainly be unwise to throw up a comfortable living in England in order to begin anew in Australia.

School Inspection.

A beginning has been made in Victoria with the task of medically inspecting the children attending the State schools. Three qualified inspectors, Dr. Harvey Sutton, Dr. Jane Greig, and Dr. Mary Booth, were recently appointed, and a comprehensive scheme of procedure has been drawn up and the first schools dealt with. There is an average attendance of 150,000 children and a total roll of 230,000, so that it will evidently be some time before anything can be attempted outside the metropolitan area.

Treatment of Consumption.

The chairman of the Victorian Board of Public Health (Dr. B. B. Ham) recently made a statement in which he urged that the municipalities should assist in the provision of sanatoriums and hospitals for cases that required segregation. He said that the Government was prepared to find £10,000 for the construction of a hospital for such cases to contain 100 beds and to pay £2500 towards its maintenance if a like sum were contributed by the municipalities.

Melbourne Hospital.

At a special meeting on Feb. 4th the governors and subscribers confirmed the proposals to do away with the scandalous old system of electing the medical staff by popular vote. An advisory board is to be appointed annually consisting of 12 members, six being chosen by the committee, two each by the hospital medical staff, the University Council, and the Faculty of Medicine. This body advises the hospital committee, which may or may not accept the recommendation. Members of the staff retire at the age of 60. A term of appointment is for five years, and the maximum for any one position is 16 years. Medical officers to special departments are also provided for. The scheme was carried with one dissentient.

Vital Statistics in Australia.

The death-rate in Victoria for 1909 was the lowest ever recorded. The excess of births over deaths amounted to 17,113, the best record for 14 years. The metropolitan figures for Sydney for 1909 show a death-rate of 10·26 per 1000, the lowest on record, and the birth-rate was 25·81 per 1000, which is the highest record. The population of Sydney and suburbs is now estimated at 605,900.

March 5th.

THE NATIONAL SOCIETY OF DAY NURSERIES will have an exhibit at the Ideal Home Exhibition, which opens at Olympia on Friday, and should give those interested in crêche work an opportunity of seeing what is being done to provide suitable accommodation for infants whose mothers have to go out to work daily. The society is exhibiting a model for the guidance not only of those about to establish a crêche, but also of those who desire in existing day nurseries to reach the standard of efficiency requisite before affiliation with the society can be obtained.

Obituary.

CHARLES ERNEST MACKENZIE KELLY, M.D., M.S. LOND., F.R.C.S. ENG., L.R.C.P. LOND.

WE regret to record the death under exceptionally distressing circumstances of Dr. Charles Ernest Mackenzie Kelly, which took place at Witney, Oxon., on March 28th. Dr. Kelly had been suffering from severe gastric pain and, as appeared from the evidence at the inquest which it was unfortunately necessary to hold, he had taken an overdose of morphia for its relief. He was attended by Dr. William Collier, who, together with the Rev. C. W. O. Jenkyn, also a friend of Dr. Kelly, performed artificial respiration during the greater part of the night before he died, and did everything that was possible to resuscitate him. There was no reason whatever to suspect that the morphia had been administered with suicidal intent, and the coroner and the jury agreed fully that Dr. Kelly's death was due to misadventure from the effects of morphia administered with the intention of procuring sleep and relief from pain. Dr. Kelly was deputy coroner for the Western division of Oxfordshire, and it is no wonder that Mr. R. F. Cuthbert, the coroner, described the inquest as the most painful duty he had performed since he had been in the district, where the unfortunate gentleman had made himself extremely popular.

Dr. Kelly was the second son of Canon Kelly of Manchester, and had practised for 11 years in Witney. He studied at the Owens College, Manchester, and took the qualification of the London colleges in 1891. In 1896 he graduated M.B., B.S. of London University. In the following year he proceeded to the Doctorate and also to the Fellowship of the Royal College of Surgeons of England, whilst in 1898 he became a Master in Surgery of London. Besides obtaining these distinguished qualifications he passed the examination for the Membership of the Royal College of Physicians, but on settling down into general practice the custom of the College compelled him to relinquish that diploma, to the expressed regret of the President. In a modest but interesting unsigned communication to THE LANCET some 12 years ago Dr. Kelly explained the great success which had marked his examination course, for all his numerous honours degrees and diplomas were earned after he was a fully qualified man and in practice. His contention was that the higher tests need have no terrors for the post-graduate student if he has behind him a sound general education, and if he can bring stern method into the conduct of his studies. Dr. Kelly was medical officer and public vaccinator of the Witney district and workhouse, an assistant medical inspector of schools to the Witney and East Burford division of Oxford, a certifying factory surgeon, and a medical officer to the Great Western Railway. He was also senior bailiff of the town, to which post he was elected for a second year. He had identified himself with the welfare of his fellow-townsmen in every way, and his death has cut short both a distinguished professional and a useful civic career.

A memorial service was held in the parish church on the day of his funeral, which took place at Ashton-under-Lyne, near Manchester. Universal sympathy has been expressed for his widow and his daughter in their terrible bereavement, and it will be echoed by all his professional brethren.

GEORGE CARPENTER, M.D. LOND., M.R.C.P. LOND., M.R.C.S. ENG.

WE regret to record the somewhat early death of Dr. George Carpenter, which occurred in London on Easter Day, whereby the medical profession has lost one of the most able and hard-working investigators of the diseases of children in this country. Dr. Carpenter, who was the eldest son of Dr. John William Carpenter, was born in 1859, and received his professional training at St. Thomas's and Guy's Hospitals, after a general education at King's College School. He qualified as a Member of the Royal College of Surgeons of England and a Licentiate of the Society of Apothecaries in 1885, and the following year took his M.B. degree at London University, proceeding to the Doctorate in 1890. In 1889 he became a Member of the Royal College of Physicians. His first staff appointment was to the out-patient department of the Evelina Hospital for Sick Children, where he ultimately became physician, but he resigned this appointment after being elected to the staff of the Queen's Hospital for Children, to which he was full physician when he died, holding also a similar appointment to the North-Eastern Hospital for Sick Children.

Dr. Carpenter was an indefatigable worker at all that concerned children's diseases, and contributed considerably to their literature. He founded and was the editor of the *British Journal of Children's Diseases* and was chairman of the council of the Society for the Study of Disease in Children and editor of its reports before its incorporation in the Royal Society of Medicine, when he became president of its Section for the Study of Disease in Children, to the proceedings of which he frequently contributed papers and cases. He was also a vice-president of the society. He was the English editor of *Pediatrics*, the American journal of children's diseases, and was a corresponding member of the Pediatric Society of Paris, while his interest in another branch of medicine was shown by his membership of the Ophthalmological Societies of the United Kingdom and of France. Whilst he took a general interest in the pathology of childhood the study of congenital diseases of the heart occupied so much of his attention that he became an acknowledged authority in that field of study. In 1894 he published a book on the subject, the evident outcome of careful thought and arrangement of ideas, and his further experience on congenital cardiac affections was crystallised in the Wightman lectures delivered last year and published in abstract in our columns. Another careful compilation was his work on Congenital Syphilis of Children in Everyday Practice, published in 1901. He was, moreover, a frequent contributor to the medical journals, and of his papers published in such a manner we may recall the following which were printed in THE LANCET: The Differential Diagnosis of Abdominal Disease in Children; Tuberculosis of the Choroid; an address on Acute Pleurisy with Effusion; on Cases of Uncomplicated Myocarditis in Children; Lecture on Rearing of Children (Institute of Hygiene, February, 1907); A Fatal Case of Chorea associated with Double Optic Neuritis and Hyperpyrexia in a child of 3½ years; and Congenital Hypertrophic Stenosis of the Pylorus and its Medical Treatment.

Dr. Carpenter married only two years ago Helen Jeanne, daughter of Henry Baron d'Este, and every sympathy will be felt with this lady at her untimely bereavement.

JOHN BURNS, F.F.P.S. GLASG., J.P.

BY the death of Mr. John Burns, which occurred last week at his residence, 15, Fitzroy-place, Glasgow, that city has lost her oldest medical practitioner and a much-respected citizen. Mr. Burns, who was in his ninety-fifth year, was a Perthshire man and was engaged in practice till within a short time of his death, when he was laid aside with cerebral hæmorrhage. At the age of six he was bereft of both his parents, and spent some years with his uncle, a farmer in Methven. At first he adopted the teaching profession, but later went to Glasgow to study medicine. In 1846 he became a Licentiate of the Faculty of Physicians and Surgeons, Glasgow, and two years later a Fellow of the Faculty. In after years he occupied for a term the office of Vice-President of the Faculty. Immediately after graduation, in the capacity of medical attendant to a distinguished invalid in search of health, he visited the chief cities of Europe, Egypt, and Palestine. On his return he started practice in the Bridgeton district of Glasgow, and it was there that for over 60 years the main part of his work was accomplished. Shortly after his starting practice the city was visited by epidemics of cholera and typhus fever, and Mr. Burns was unwearied in his efforts to stay the ravages of these dreaded diseases. Ultimately he was struck down by typhus fever, and as the attack was a very severe one his ultimate recovery was unexpected. His skill and ability in his profession were acknowledged by all who came in contact with him, but in addition he had a warmth of affection and a generosity of disposition that made his character peculiarly attractive. Many anecdotes are told of his kindness to his patients. On one occasion a patient in straitened circumstances found on opening the pill-box that he had given her, not pills, but money to pay for more necessary things. On another occasion a medical friend met him coming out of a provision shop laden with bread and butter and eggs, and in answer to his chaff Mr. Burns said that he was taking the things to a patient, and that they would do her more good than all the drugs he

could prescribe. As the result of his active and useful life he had acquired a competence and was looking forward to the time when he might retire from practice, when he was practically ruined by the failure in 1878 of the City of Glasgow Bank, in which he was a small shareholder. Though he was now in his sixty-fourth year, he set to work again with a vigour and elasticity which might have been looked for only in a man still in his prime, and with so much success that he was able to pass his declining years in ease and comfort. On the occasion of his jubilee as a doctor in 1896 Mr. Burns was presented with a brougham by his numerous friends in Glasgow and the West of Scotland. Soon afterwards he was made the recipient of a further mark of regard in the form of his portrait, painted by Mr. John P. Downie. The portrait was accepted by the Lord Provost of the day in the name of the corporation, and now hangs in the People's Palace on the Green in the immediate neighbourhood of the district in which for so many years Mr. Burns pursued his beneficent calling. In his will, after making provision for certain relatives and leaving numerous small legacies to friends, Mr. Burns has directed his trustees to distribute over £7000 amongst certain of the hospitals of Glasgow and Perth, and amongst various missions at home and abroad in which he was interested.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Ogata, who was one of the first Japanese to study medicine in Europe, has died at the age of 67 years. He was instrumental in founding the Japanese Red Cross Society and the Osaka Medical School, and was medical adviser to the Royal family. He contributed numerous papers to Japanese and German medical journals.—Dr. William H. Taylor, formerly professor of midwifery and gynæcology in the Miami Medical College, Cincinnati.—Dr. Henry K. Cushing, formerly professor of gynæcology in the Western Reserve University, Cleveland.—Dr. Ernest Wende, professor of dermatology in the University of Buffalo.—Dr. Henri Ricard, member of the French Senate for the Côte-d'Or.—Dr. Bauby, surgeon to the Toulouse hospitals and *professeur agrégé* in the University.—Dr. Candido Barata Ribeiro, professor of children's diseases in the University of Rio de Janeiro.—Dr. Joh. Krannhals of Riga, who for many years edited the St. Petersburg *Medizinische Wochenschrift*, has died from typhus fever.—Dr. Eduard Bethe of Stettin, whose name is well known as an accomplished entomologist. He was also a much respected practitioner. His age was 82.—Dr. Eduard Friedrich Wilhelm Pflueger, the Nestor of German physiologists, died at Bonn on March 16th. He was born in June, 1829, in Hanau, and at first studied law in Berlin, but after a few sessions abandoned that faculty for the medical where he distinguished himself even before his degree, which he took in 1857, by publishing an important research on the sensory function of the spinal cord. He soon became assistant to Professor Johannes Müller, and on the death of the latter, which occurred very shortly afterwards, he and Dr. E. du Bois Raymond were entrusted with the duty of continuing their deceased master's lectures. In 1859 he was appointed to the chair of physiology in Bonn, where he remained all the rest of his life. He published some two hundred numbers of the *Archiv für Physiologie*. These dealt in the earlier years chiefly with psychology and the physics of the nervous system, later with embryology and anatomy, and finally with problems of metabolism.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* Dr. J. Tichborne, senior medical officer, Gold Coast, retires on pension. The following officers have been promoted: Dr. J. A. Pickels, from senior medical officer, Southern Nigeria, to be senior sanitary officer, Southern Nigeria; Mr. H B. S. Montgomery from medical officer, Gold Coast, to be senior medical officer, Gold Coast; and Dr. R. Laurie from medical officer, Southern Nigeria, to be junior sanitary officer, Southern Nigeria. Dr. W. H. Peacock has been appointed to the staff, Southern Nigeria.—*Other Colonies:* Mr. W. J. Woodman has been appointed assistant colonial surgeon in British Honduras, and Mr. J. F. O'Brien has been appointed a medical officer in the Straits Settlements.

Medical News.

THE UNIVERSITY OF LIVERPOOL: GRADUATION CEREMONY.—A moderate attendance of undergraduates and friends on March 23rd witnessed, in the Senate Room of the University, the periodical graduation ceremony. This was performed by Vice-Chancellor A. W. W. Dale, the following being duly presented by the Dean of the Medical Faculty and receiving their degrees:—

DEGREES OF M.B., CH.B.

Final Examination, Part II.—L. Buckley, J. A. Parkes, and J. F. Roberts.
Part I.—G. S. A. Bishop, I. C. Edwards, P. L. F. Nortjé, and I. J. Williams.
Second Examination, Part A.—R. G. Barlow, A. W. Bigland, A. V. Glendenning, R. Lee, J. H. Mather, M. T. Morgan, F. C. Plummer, Miss F. M. B. Price, H. Seddon, J. P. Thierens, F. Wilkinson, B. Williams, and T. O. Williams.
Part B.—R. Heald, N. P. Laing, and T. H. Martin.

DEGREE OF B.D.S.

Final Examination.—P. Kelly.
Third Examination.—H. T. Imlach.

DIPLOMA IN DENTAL SURGERY.

Second Examination.—G. Q. Dinn and W. Williams.
Third Examination.—J. Burns and J. Tyson.

After conferring the degrees the Vice-Chancellor gave some wholesome practical advice to the recipients.

UNIVERSITY OF DURHAM.—On April 2nd a Convocation was held in the Durham College of Medicine, Newcastle-on-Tyne. Professor Sir George Hare Philipson, the senior pro-Vice-Chancellor of the University, presided, and there was a large gathering, including Sir Thomas Oliver, Dr. Drummond, Professor R. Howden, Professor Bedson, Professor Stuart McDonald, Rev. J. H. Howe (Senior Proctor), and Mr. P. J. Henwood (Junior Proctor). The following medical degrees were conferred:—

M.D.—Henry Mounsey Braithwaite, Sidney Nix, and Thomas Leathard Wormald, College of Medicine.
M.D. (Practitioners).—John Brabant Bate, William Black, Robert Marshall, Charles Frederick Rudd, and Patrick Nunan Twomey, College of Medicine.
D.Hy. (in absentiâ).—Thomas Matthew, College of Medicine.
M.S. (Master of Surgery).—Frederick Charles Pybus, College of Medicine.
M.B.—Jabez Ethelbert Dainty, Charles Marks, Charles Martin Brown, Bloomfield George Henry Connolly, William Sacco, Charles Sim Thompson, William Robert Elstob Unthank, and Charles Leslie Wigan, College of Medicine.
B.S. (Bachelor in Surgery).—John Frederick Bridge, Bloomfield George Henry Connolly, Jabez Ethelbert Dainty, Charles Marks, William Sacco, Charles Sim Thompson, William Robert Elstob Unthank, and Charles Leslie Wigan, College of Medicine.
B.Hy.—Eldred Curwen Braithwaite, Arthur Charles Greene, Isaiah Hodgkinson, and Andrew Banks Raffle, College of Medicine.
D.P.H.—Eldred Curwen Braithwaite, Joseph Buck, Arthur Charles Greene, Isaiah Hodgkinson, William Whittle Martin, James Booth Patterson, Agnes Melville Pringle, Andrew Banks Raffle, and Catherine Mary Richardson, College of Medicine.

At examinations in the Faculty of Medicine in March the following candidates were successful:—

DEGREE OF BACHELOR OF MEDICINE.—FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry and Physics.—William Bell, College of Medicine, Newcastle-upon-Tyne; Arthur Butterfield, Edinburgh School of Medicine, and College of Medicine, Newcastle-upon-Tyne; Maurice Henry De Jersey Harper, Robert Rutherford Lishman, Edward Rowland Alworth Merewether (second-class honours), Gerald Douglas Newton, William Kerr Russell (first-class honours), and Sydney Thompson, College of Medicine, Newcastle-upon-Tyne.
Elementary Anatomy and Biology.—Cyril Armstrong, William John Bowden, Patrick Alexander Clements, Ishmael Gustavus Cummings, and Geoffrey Bede Egerton, College of Medicine, Newcastle-upon-Tyne; Henry Hawes Elliot, Guy's Hospital; Rev. Samuel Foskett, College of Medicine, Newcastle-upon-Tyne; David Rees Jones, Guy's Hospital; Francis Metcalfe, Frederick John Nattrass, Ernest Charles Gilchrist Parker, Jane Penman, and Hume Alexander Playfair Robertson, College of Medicine, Newcastle-upon-Tyne; Philip Savage, Guy's Hospital; and James Calvert Spence and Reginald Leslie Wright, College of Medicine, Newcastle-upon-Tyne.
Chemistry and Physics.—Arthur Causton Freeth, St. Mary's Hospital; James Melville Phillips-Jones, College of Medicine, Newcastle-upon-Tyne; Felix Stephens Rood, M.R.C.S., L.R.C.P., University College, London; and Eric Knowles Ryan, University of Sheffield.
Elementary Anatomy.—Leslie Lake Armstrong and Mary Lyle Haigh, College of Medicine, Newcastle-upon-Tyne.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—John Stanley Arkle (second-class honours), Robert Ernest Bell, and Herbert Grantham Dodd, College of Medicine, Newcastle-upon Tyne; Walter Armstrong Elliott, Edinburgh University; and Frederick John Henry Tobias Frere, Sydney Ellington Murray, William Somerville

Murray, Charles Henry Robson, Sidney Scott, and Herbert Joseph Shanley, College of Medicine, Newcastle-upon-Tyne.

THIRD EXAMINATION.

Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology.—Sam Phillips Bedson, B.Sc. (second-class honours), and Joseph Jopling Brown, College of Medicine, Newcastle-upon-Tyne; Richard Murray Barrow, St. Bartholomew's Hospital; Ronald Greig Badenoch, Joseph Wilfrid Craven, William Leitrim Clements, Harold Fairclough (second-class honours), Cyril Gray, and James Kenworthy Johnston Haworth, College of Medicine, Newcastle-upon-Tyne; Cyril John Henderson, William Guy Lidderdale, Colin Mearns, Benjamin Bell Noble, Robert Wilkie Smith, James Alwin Colville Scott, and William Arthur Slater, College of Medicine, Newcastle-upon-Tyne; Russell Vyvyan Steele, University College, London; and Eleanor Walkinshaw, College of Medicine, Newcastle-upon-Tyne.

DIPLOMA IN DENTAL SURGERY (L.D.S.).—FIRST EXAMINATION.

Chemistry and Physics.—Tom Merchant Hopgood and William Hutson, College of Medicine, Newcastle-upon-Tyne.

UNIVERSITY OF EDINBURGH.—At a graduation ceremony held in the M'Ewan Hall on March 31st the degrees of Bachelor of Medicine and Bachelor of Surgery were conferred on the following:—

Thomas Alexander Adams, Alexander Archibald, Janet Armstrong, William Mervyn Biden, Evan Owen Bowen, Uriah Findlater Farrel Brown, John Cathcart, John Phethean Charnock, Bodj Raj Chopra, Lizzie Mackay Smith Clark, Gladys Hope Cook, Henry Anstey Cookson, Godfrey Christopher Dalton, Francis Antrobus Duffield, James Eaves, Alexander Harper Elmslie, Francis Samuel Brook Fletcher, Valentine Henry Gordon, Eduard Bernard Hoffman, Gaspard de Coligne Hugo, Ronald Bute Macfie, Gregor Mackenzie Miller, William Archibald Miller, Rhoda May Murdoch, Frederick Honorate Noronha, James Edward Russell Orchard, Peder Nielsen Pedersen, Stanley Pinion, Philip Roytowski, Arthur Clouston Russell, Morton Wood Ruthven, Thomas Cyril Smith, John Graham Smyth, Malcolm Stewart, Leonard Whitaker Owen Taylor, Mary Murray M'Calman Turpie, Tom Welsh, and Seymour Williams.

UNIVERSITY OF ABERDEEN.—The following degrees were conferred at a graduation ceremony on March 31st:—

Degree of Doctor of Medicine (M.D.).—Alexander Andrew Bisset, Archibald Deane, Francis Hernaman-Johnson, and James William Littlejohn.

Degree of Master of Surgery (Ch.M.).—Robert Williamson Asher Salmond.

Degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.).—Hardress Brayshaw, Alex. John William Calder, Norman James Calder, Joseph Pirie Cameron, Robert Maxwell Chance, Charles Clyne, Ernest William Henderson Cruickshank, Clarence Edward Greeson, Thomas Curr Halley, Robert Hillhead Kellas, Charles McKerrow, Alex. Mitchell, Alex. Dawson Reid, William James Reid (second-class honours), *Robert Richards (second-class honours), Henry Edward Shortt, Colin Finlayson Simpson (second-class honours), Roland Sinclair, William Smith, David James Shirres Stephen, and Alex. Urquhart Webster.

* Passed Final Professional examination with "much distinction."

Degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.) (Old Regulations).—Stephen Galt Trail, Fraserburgh.

Diploma in Public Health.—Cuthbert Delaval Shafto Agassiz, James Clark Bell, Ernest Bisset, Donald Murray, Patrick Nicol, and Alexander Charles Profeit.

TRINITY COLLEGE, DUBLIN.—At examinations held recently the following candidates were successful:—

FINAL MEDICAL EXAMINATION.

Part I.—James M. Elliott, Thomas A. Watson, Frank Crosbie, John Gardiner, William O. Halpin, Robert E. Dunn, Matthew M'Knight, James Beckett, Oswald C. S. Tandy, Thomas M. Crawford, and Thomas W. E. Henry.

Part II., Midwifery.—William L. English, Adrian Stokes, Herbert de L. Crawford, Richard H. Mathews, Charles W. M'Kenny, Samuel R. Richardson, Andrees A. Louw, Hans Fleming, Charles M. Finny, Mary G. Caskey, Louis Trichard, Vicars M. Fisher, Robert E. Lee, John G. Ronaldson, Victor G. Best, William M. Johnstone, Walter E. Adam, Charles D. Hanan, and Cecil Grene.

INTERMEDIATE MEDICAL EXAMINATION.

Part I.—Francis Breen, Joseph A. Maxwell, Kenneth K. Drury, Reginald Johnson, Rev. Thomas Brook, Richard E. Tottenham Charles W. C. Myles, Edgar Ll. Nash, and Brian D. Crichton.

Part II.—Eileen Hewitt, James N. Armstrong, John Colgan, Georgina Revington, Jevan H. Powell, William P. Croker, Hugh G. Trayer, Herbert Bates, Dorothy K. Milne, Jerome H. Counihan, William O. W. Ball, Robert A. Flood, William E. Fetherstonhaugh, James H. Grove-White, Frederick B. M'Carter, Arthur P. Draper, Oswald V. Burrows, Robert H. Lyons, Kenneth K. Drury, Charles W. C. Myers, J. Florence Colquhoun, James N. G. Nolan, Robert E. Dunn, Edward Evans, Edwin F. O'Connor, Rev. Thomas Brook, Joseph A. Maxwell, Bernard G. Quinlan, Richard Grandy, Francis V. Agnew, and Marjory Chapman.

PRELIMINARY SCIENTIFIC EXAMINATION.

Physics and Chemistry.—David H. Hall, William E. Tyndall, George Buchanan, Frederick Harris, Etienne J. Malherbe, Arthur Brady, William F. Gibson, Joseph C. A. M'Calden, Robert J. B. Madden, Richard S. G. Halpin, William R. L. Waters, Frederick C. Fleming, George A. Bridge, Francis A. Roddy, Cecil G. Sherowitz, Thomas E. B. Beatty, Frank S. Gillespie, Charles O'Reilly, and William A. Ryan.

Botany and Zoology.—David S. Martin, William C. L. Shee, Thomas J. Kelly, William L. Bates, Robert C. Chapman, Charles P. Kelly, Edward D. Kinsey, William A. Ryan, Francis P. Mitchell, Charles D. M. Buckley, Edwin Boyers, Edmond Robinson, Robert J. B. Madden, William Hunt, and Cecil G. Sherowitz.

PREVIOUS DENTAL EXAMINATION.

Materia Medica.—George A. Yeates.

Physics and Chemistry.—William Y. Kingston.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Henrichsen has been recognised as *privat-docent* of Psychiatry.—*Berlin:* It is believed that Professor Senator is about to retire. Dr. R. Krönig of Freiburg has been offered the second chair of Gynæcology in succession to Professor Bumm, who is to succeed Professor Olshausen on his retirement. Dr. Franz Müller, *privat-docent* of Psychiatry, has been granted the title of Professor.—*Berne:* Dr. Kehrer of Heidelberg has been appointed Professor of Midwifery and Gynæcology in succession to Dr. Peter Müller, retired.—*Bologna:* Dr. Luigi Vacari has been recognised as *privat-docent* of Surgery and Operative Medicine, and Dr. Vittorio Putti as *privat-docent* of Orthopædic Surgery.—*Düsseldorf (Academy of Practical Medicine):* Dr. S. Engel has been appointed *dozent* of Children's Diseases; Dr. Peter Jansen, *dozent* of Surgery; and Dr. Reinhard von den Velden, *dozent* of Medicine and Pharmacology. Dr. Ballowitz, Professor of Anatomy in the University of Münster, has been appointed to teach the same subject also in Düsseldorf.—*Frankfort:* Dr. Heinrich Bechold of the Institute of Experimental Therapeutics has been granted the title of Professor.—*Genoa:* Dr. Giulio Masini has been appointed Extraordinary Professor of Otology and Laryngology.—*Greifswald:* Dr. Paul Krömer of Berlin has been appointed Professor of Midwifery and Gynæcology, in succession to Professor Max Henkel.—*Kazan:* Dr. Dobrovolski of St. Petersburg has been appointed Extraordinary Professor of Hygiene.—*Kharkoff:* Dr. P. I. Shatiloff has been appointed Extraordinary Professor of Diagnosis and Propædeutics.—*Kiel:* Dr. Göbell has been appointed Director of the Surgical Polyclinic; Dr. Karl Behr has been recognised as *privat-docent* of Ophthalmology.—*Leipsic:* Dr. Hermann Heineke, *privat-docent* of Surgery, has been promoted to an Extraordinary Professorship.—*Moscow:* Dr. A. V. Martinoff has been appointed Professor of Clinical Surgery in succession to the late Professor P. I. Diakanoff.—*Munich:* Dr. Max Borst of Würzburg has been appointed Professor of General Pathology and Pathological Anatomy, and Director of the Pathological Institute in succession to Dr. Bollinger.—*New Orleans:* Dr. George S. Bel has been appointed Professor of Medicine.—*Palermo:* Dr. Spallita has been appointed Extraordinary Professor of Experimental Physiology.—*Parma:* Dr. Roncoroni has been appointed Professor of Neurology and Psychiatry.—*Philadelphia (University of Pennsylvania):* Dr. James K. Young, Professor in the Woman's Medical College of Pennsylvania, has been appointed Adjunct Professor of Orthopædic Surgery.—*Sassari:* Dr. Mario Pelagatti has been appointed Extraordinary Professor of Dermatology and Syphilography.—*St. Petersburg (Military Medical Academy):* Dr. Shkarin, *privat-docent* of Pædiatry, has been appointed Extraordinary Professor.—*Strasburg:* Dr. H. Landolt, *privat-docent* of Ophthalmology, has been granted the title of Professor.—*Vienna:* Dr. Ernst Wertheim has been appointed Professor of Midwifery and Gynæcology in succession to Professor von Rosthorn, who died several months ago. Dr. Ludwig Jehle has been recognised as *privat-docent* of Children's Diseases, and has been appointed to the charge of the Children's Department in the General Polyclinic in succession to the late Professor Monti.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: MUSEUM DEMONSTRATIONS.—The second annual series of demonstrations of specimens contained in the Museum of the Royal College of Surgeons will be delivered in the theatre of the College by the conservator, Professor Arthur Keith, and by the pathological curator, Professor S. G. Shattock. Professor Keith lectures to-day (April 8th) on Misplacements and Malformations of the Kidney and Ureter; on April 15th on Irregularities in the Development and Position of the Testicle; and on April 22nd on Malformations and Cysts of the Ovaries and Female Appendages. Professor Shattock will lecture on April 18th on Carcinoma, on April 25th on Tuberculosis, and on May 2nd on specimens illustrating Repair. The demonstrations will commence at 5 P.M., and are intended for advanced students and medical practitioners.

MEDICO-PSYCHOLOGICAL ASSOCIATION. — The dates of the professional and Gaskell prize examinations have been altered to July 6th and July 21st respectively.

UNIVERSITY OF OXFORD.—The Board of Faculty of Medicine has coöpted as a member of the Board Mr. John S. Fairbairn, B.M., M.A., Magdalen College, to hold office for two years from May 1st, 1910.

LONGEVITY.—The *Times* of April 2nd drew attention to the fact that 45 notices of death appeared in that issue, and 17 of these were of persons over the age of 70, whose average age was 79·8 years. Two were over 90, six between 80 and 90, and nine between 70 and 80.

THE FEEDING OF SCHOOL CHILDREN.—The benefit derived from the free breakfasts supplied during the winter months to a certain number of children at Hastings has been specially reported upon by the medical officer in that borough, and the town council on April 1st gave the necessary authority to the education committee to spend a sum not exceeding £100 on the provision of food for those children in need of it from April to October when the breakfasts are not provided.

PRESENTATION TO A MEDICAL PRACTITIONER.—At Hurstpierpoint, Sussex, on March 21st, Mr. Edward J. Parry, M.R.C.S.Eng., L.R.C.P. Lond., was presented with an illuminated address, a cheque value £100, and a book bearing the names of the subscribers, from patients and friends in the neighbourhood, "as a slight expression of regard and esteem." Mr. Parry, who has retired from the firm of medical practitioners at Hurstpierpoint, was also the recipient of other presents from admirers in the district where he has been for seven years.

THE HOSPITAL ALMONERS' COUNCIL.—The objects of this council are to select and arrange for the training of suitable candidates for posts as hospital almoners, to grant certificates of competency for such posts, and generally to take any steps which may be desirable for extending and developing the work of hospital almoners, and the report for the year 1909 shows that steady work has been accomplished in helping to check the widespread abuse of the out-patient departments of our hospitals. The Royal Free Hospital was the first institution to appoint an almoner, some 15 years ago, and since that time other hospitals has adopted the system. During the year the council has trained two more almoners for the London Hospital, and almoners have been provided for Westminster Hospital, Great Ormond-street Hospital for Sick Children, and St. Thomas's Hospital. It is hoped that three almoners will shortly be able to take up work at Leeds. The offices of the council are at Denison House, 296, Vauxhall Bridge-road, London, S.E.

MALARIA: ITS ETIOLOGY AND PREVENTION.—A prize of 1000 fr. (£40) is offered by the Lombard Committee of the National League against Malaria to the Italian physician who will submit to the said committee "il miglior lavoro di indole scientifico-pratica sul problema della lotta contro la malaria" (the best work of a scientific and practical tenor on the question of how to combat malaria). The conditions are these: The essay or monograph, in manuscript or in print, must be sent in not later than May 20th, 1910; and, if in print, must not have seen the light before 1908. The essay or monograph, bearing its author's name, must be addressed to the "Consiglio Lombardo della Lega Nazionale contro la Malaria," at its headquarters, "Gli Istituti Biologici della R. Università di Pavia." The successful competitor must consign to the President of the Lombard Committee 30 copies of his work. If presented in manuscript it will have to be published within the year 1910, and copies to the above number consigned to the President, after which the successful competitor will be entitled to the prize. The committee charged with examining the competing essays or monographs and determining the first in point of merit consists of the following gentlemen: Dr. Camillo Golgi, professor of general pathology, and Dr. Carlo Forlamini, professor of clinical medicine, both of the University of Pavia; Dr. Giovanni Battista Grassi, professor of comparative anatomy and entomology in the University of Rome; Professor G. Bordoni Uffreduzzi, medical officer in chief of the commune of Milan; and Dr. L. Pampana, of the same province. The donor of the prize is Signor Giulio Hyler.

A DEVONSHIRE CENTENARIAN.—Miss Mary Bury Cobbett, of 15, Queen's-terrace, Exeter, celebrated the hundredth anniversary of her birthday on March 29th.

THE MEDICAL SOCIETY OF LONDON.—A special meeting will be held on Monday, April 18th, at 8.30 P.M., at which a paper on Inheritance in Hæmophilia will be read by Dr. W. Bulloch and Mr. Paul Fildes. Amongst those who are expected to be present and take part in the discussion are Sir Almroth Wright, Professor W. Osler, Professor Karl Pearson, and Professor W. Bateson.

A CAMBRIDGE MEDICAL SOCIETY IN THE MANCHESTER DISTRICT.—It is proposed to form a society of medical men who have studied at Cambridge, to comprise those practising in Manchester and the surrounding district. A meeting to constitute the club will be held at the Queen's Hotel, Manchester, on Wednesday, April 27th, at 6 P.M., and will be followed by a dinner at 7 P.M. Dr. Alfred Godson of Cheadle has accepted the post of president for the first year. Any Cambridge medical men residing in the district who have not received notice of the meeting are requested to communicate with the provisional secretary, Dr. E. B. Leech, 242, Oxford-road, Manchester.

THE NEW MEDICAL BUILDINGS AT MCGILL.—The new buildings of the medical faculty of McGill University are to be opened on June 6th and 7th. It is intended to mark their inauguration by a réunion in Montreal of as many as possible of the medical graduates of McGill. Word has been received from members of each of 45 classes which have passed through the faculty of medicine, and, without exception, each class has signified its intention to unite as many of its members as possible at a class réunion in Montreal for the opening festivals. The magnificent new buildings have been built to replace those which were destroyed by fire in 1907, and they have been erected at a cost of about $750,000. Lord Strathcona contributed considerably more than half of this sum, and he gave, in addition, the site, close to the old medical buildings, upon which the new structure has been erected. The Governor-General is to preside over the inauguration ceremonies, which will be arranged on an extensive scale.

RECORDS OF DETENTION IN PADDED ROOMS AT WORKHOUSES.—The Local Government Board has addressed a circular letter to the boards of guardians stating that its attention has recently been drawn to the need of some record of cases where inmates of workhouses are detained in the padded rooms at those institutions, with which the Commissioners in Lunacy have expressed their agreement. The Board requests that in those unions where there is a padded room at the workhouse the guardians will give directions for the necessary record to be kept of every case of detention in the padded room. The record should show the date and duration of the detention, the reasons for the treatment, and what directions were given by the medical officer in the matter. Any such entries should be brought to the notice of the Commissioner in Lunacy on the occasion of his next visit to the workhouse. The letter adds that the Commissioners consider that in no case should a person be detained in a padded room at the workhouse except under the previous order or with the concurrence or approval of the medical officer.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Midwives Bill.

Viscount WOLVERHAMPTON, as Lord President of the Council, has introduced a Midwives Bill into the House of Lords. Its purpose is "to amend the Midwives Act, 1902." The measure has been printed, and a memorandum attached to it states that it is for the most part founded upon the report of the Departmental Committee appointed to consider the working of the Midwives Act, but it departs from the recommendations of that committee in one or two details. Briefly stated, the main objects of the Bill are: (1) the reconstitution of the Central Midwives Board; (2) to make additional provision to deal with the enrolment and suspension of midwives and the notification of their practice; (3) to regulate further the powers of local supervising authorities; and (4) to make provision for the payment of the fees of medical practitioners called in on the advice of midwives.

Clause 1 of the Bill alters the constitution of the Central Midwives Board. It is proposed that the Board shall consist of—(*a*) two persons (one of whom shall be a woman) to be appointed by the Lord President of the Council, and one person to be appointed by the Local Government Board; (*b*) four duly qualified medical practitioners, one to be appointed by the Royal College of Physicians of London, one by the Royal College of Surgeons of England, one by the Society of Apothecaries of London, and one by the British Medical Association; (*c*) two certified midwives to be appointed, one by the Incorporated Midwives Institute, and one by the Royal British Nurses Association; and (*d*) four persons to be appointed, one by the County Councils Association, one by the Association of Municipal Corporations, one by the Society of Medical Officers of Health, and one by the Queen Victoria's Jubilee Institute of Nurses.

The effect of the reconstitution will be to increase the number of the Board from nine to 13 members, representation being given to the following bodies, who were previously unrepresented:—(1) The Local Government Board; (2) the Association of Municipal Corporations; (3) the Society of Medical Officers of Health; and (4) the British Medical Association. The member appointed by the last-mentioned Association must be a medical practitioner. No special qualification is prescribed in the case of members appointed by the other new bodies. In addition to this increase in numbers, the qualifications of the members appointed by the Incorporated Midwives Institute and the Royal British Nurses Association have been altered. In the future the members appointed by these bodies must be certified midwives. At present the member appointed by the Incorporated Midwives Institute must be a medical practitioner, whilst with respect to the member appointed by the Royal British Nurses Association no special qualifications are required.

The future revision of the constitution of the Central Midwives Board is provided for by Clause 2. It lays down that the Board may at any time represent to the Privy Council that it is expedient to modify its constitution either by (*a*) increasing or diminishing the number of persons appointed by any body or person; or (*b*) abolishing the power of appointment by any body or person; or (*c*) conferring on any body or person a power of appointment of one or more persons; or (*d*) altering the term of office or qualifications of any members. The clause provides that the scheme thus formulated by the Central Midwives Board is to lie on the table of both Houses of Parliament for 40 days, and if no address against its contents is passed by either House the Privy Council may proceed to enforce it by Order in Council.

Extended powers of framing rules to define the conditions under which a midwife may be suspended from practice are proposed to be conferred by Clause 8. The Board may under it frame rules—(*a*) authorising the suspension of a midwife from practice for such period as the Board thinks fit, in lieu of striking her name off the roll, and to suspend from practice until the case has been decided, and (in the case of an appeal) until the appeal has been decided, any midwife accused before the Board of disobeying rules or regulations or of other misconduct; and (*b*) authorising the local supervising authority which takes proceedings against a midwife either before a court of justice or the Central Midwives Board to suspend her from practice until the case has been decided.

Under Clause 10 (offences by midwives) the Board is given the discretion of prohibiting a woman whose name it removes from the roll from attending women in childbirth in any other capacity. This clause may be enforced by fine.

Clause 11 deals with the notification of practice. Where a certified woman who has not given to the local supervising authority such a notice as is required by the principal Act attends any woman in childbirth in any capacity other than that of midwife, and a duly qualified medical practitioner is not present at the time of the birth, she shall, within 48 hours from the birth, give to the local supervising authority notice in writing of the fact that she so attended.

Powers are given to local supervising authorities to contribute to the training of midwives, and Clause 15 gives them powers of entry. The clause runs as follows: "For the purpose of exercising the powers of supervision over midwives conferred on local supervising authorities, any officer appointed by such an authority for the purpose may at all reasonable times enter any premises which he has reason to believe to be a lying-in home conducted for profit within the area of the authority, and in which he has reason to believe that a certified midwife is employed or practises, or that a woman not a certified midwife practises in contravention of the principal Act, and any person who wilfully obstructs any such officer in the performance of his duties shall on summary conviction be liable to a fine not exceeding *five* pounds."

Provision is made in Clause 17 for the payment of fees of medical practitioners called in on the advice of midwives in cases of childbirth. The text of the clause adequately explains the machinery. It runs thus: "(1) Where a duly qualified medical practitioner has been summoned upon the advice of a certified midwife attending a woman in childbirth to render her assistance in a case of emergency in pursuance of any rule framed by the Central Midwives Board, he shall, subject to regulations to be made by the Local Government Board, be entitled to recover from the board of guardians of the Poor-law union in which the woman resided such fee in respect of his attendance as may be fixed by those regulations. (2) The payment of such fees may, if the board of guardians think fit, be treated as relief by way of loan and be recoverable accordingly. (3) Every board of guardians shall in each quarter send to every local supervising authority concerned a list of the cases within the area of the authority in respect of which fees have been paid by the board of guardians under this section."

Clause 18 lays down that "the General Medical Council may for the purposes of section 3 of the principal Act, act through their executive committee instead of through the English Branch Council."

Vital Statistics of England and Wales.

A general abstract of the births, deaths, and marriages registered in England and Wales during the year 1909 has been issued, but the figures are subject to revision. The population of England and Wales in the middle of 1909 is estimated at 35,756,615. The total of marriages for the year was 260,259; of births, 914,621; and of deaths, 518,075.

HOUSE OF COMMONS.

THURSDAY, MARCH 31ST.

Public Health at Germiston (Transvaal).

Mr. O'GRADY asked the Under Secretary of State for the Colonies how many irregular cemeteries existed for the burial of natives employed in the mines in the Germiston municipality, in the Colony of the Transvaal; whether he was aware that natives were indiscriminately interred in the numerous scattered loci to suit the convenience of the mines, that the bodies were superficially disposed of in the huge mine dumps close to residences, and that the bodies had no mark of identification and were often not enclosed; whether he was aware that, in view of the danger to public health arising from this method of burial, protests had been lodged by the police surgeons of the neighbourhood; and, if so, would representations be made to the Government of the Transvaal to end such a state of things.—Colonel SEELY replied: This being entirely a matter for the Transvaal Government, it would be both unusual and undesirable to take the action proposed by my honourable friend.

Mr. O'GRADY: Have these facts been brought to the attention of the Colonial Office before?—Colonel SEELY: I am not prepared to admit what is stated in the question. I have no knowledge of it.

Mr. O'GRADY asked the right honourable gentleman whether, seeing that under the new constitution granted to South Africa for the Union Parliament, it was laid down that issues affecting the general welfare of the natives of South Africa would be reserved to the Imperial Parliament, and having regard to the congregations of native subjects of foreign Powers, such as of Portuguese and other nationalities from foreign territories close by, who were indentured and under contract in the Transvaal and other South African mines, and to the presence of Asiatics who were resident in the compounds at the time, whose welfare was also under Imperial supervision, would the Secretary of State for the Colonies obtain information relative to the outbreak of infectious disease in the Germiston and contiguous municipality of Johannesburg in the Transvaal Colony, and the incidents leading up to the dismissal of Dr. Michael Arthur Curry, the medical officer of health during the period under review, and to the treatment in general of their medical officials; and whether such treatment acted prejudicially to the health of the foreign natives and the white workers in the mining districts of South Africa.—Colonel SEELY answered: The matters referred to in my honourable friend's questions are matters for the Transvaal Government to consider, and not for the Secretary of State, who does not exercise any authority in respect of them. No complaints regarding foreign natives have reached the Secretary of State through any diplomatic channel.

Drainage in the Dunmoran District.

Mr. SCANLON asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been directed to a resolution of the Sligo county council calling upon the Congested Districts Board to make a grant for the improvement of the Dunmoran drainage district in the Drumoor West union of county Sligo; and whether he would cause this matter to be submitted for immediate consideration of the Board, as some drainage improvement was essential in the interests of sanitation and public health.—Mr. BIRRELL replied: I am aware that the Sligo county council have passed a resolution to the effect stated in the question, but the Congested Districts Board have decided that in such cases they cannot undertake drainage works except in connexion with estates purchased by them.

The Sick Berth Staff of the Royal Navy.

Lord CHARLES BERESFORD asked the First Lord of the Admiralty whether he could see his way to make an improvement in the pay and status of the sick berth staff of the Royal Navy.—Mr. MCKENNA (by written answer) replied: The position of the sick berth staff in the matter of pay and advancement was one of the subjects dealt with by the Committee on the Naval Medical Service, whose recommendations are now under the consideration of the Admiralty.

The Blue Book on Infant Mortality.

Mr. POINTER asked the President of the Local Government Board whether he could state when the Blue Book on Infant Mortality, promised by him some time ago, would be published.—Mr. BURNS wrote in reply: Some progress has been made with the report referred to, but I am not in a position to fix a date for its publication.

MONDAY, APRIL 4TH.

The Children's Infirmary, Carshalton.

Mr. DAWES asked the President of the Local Government Board whether he was aware that in November last the managers of the Children's Infirmary, Carshalton, submitted to the Local Government Board certain proposals for increasing the accommodation from 800 to 1200 patients by the provision of the necessary additional staff quarters and isolation wards; and, if so, would he say what reply had been given by the Board.—Mr. BURNS replied: The managers of the Metropolitan Asylums Board on Nov. 23rd last submitted to my Department proposals for certain extensions to the Children's Infirmary at Carshalton. The proposals involve the expenditure of a very large sum, estimated to exceed £50,000 or £60,000. In view of the large margin of spare accommodation in other institutions belonging to the Asylums

Board, I am of opinion that the whole question of the accommodation of the various classes of patients in the charge of the Asylums Board needs careful consideration, and I am in correspondence with the managers on the subject.

Experiments on Living Animals.

Mr. DOUGLAS HALL asked the Secretary of State for the Home Department whether he would direct that in the forthcoming annual return under the Cruelty to Animals Act, 39 and 40 Vic., c. 77, the reasons should be set out why, in experiments performed on dogs without the use of anæsthetics, it was necessary to employ those animals to prevent the object of the experiment being frustrated; and whether any steps were taken, and, if so, what steps, to test the soundness of the reasons given in these cases for making the experiments on dogs.—Mr. CHURCHILL answered: In dealing with certificates for experiments on dogs, whether with or without the use of anæsthetics, the reasons given for making the experiments on dogs are always carefully scrutinsed by my expert advisers; and if there is any doubt special inquiry is made before the certificate is allowed as to the possibility of performing the experiments on other animals. I do not think anything would be gained by giving these reasons in the annual report.

Mr. DOUGLAS HALL further asked the right honourable gentleman what was the total number of licences and certificates to experiment on living animals applied for during the year 1909, and the total number of licences and certificates granted for that purpose in that year.—Mr. CHURCHILL replied: 483 licences were in force during 1909. Of these, 94 were new licences granted in 1909; the remainder were renewals. No applications for licences were refused in 1909. As no applications come before the Secretary of State unless they are first recommended by the highest scientific authorities a refusal is naturally of rare occurrence. As regards certificates, the Secretary of State does not grant certificates—he has only a power of disallowance. I cannot at present state the number of certificates in force during the year, but information will be given in the annual return, which will probably be published in June. The number of certificates totally disallowed was eight, and in many other cases the Secretary of State disallowed certain procedures that were proposed or in other ways limited the scope of the certificate.

Grants in Aid to Irish Hospitals.

Answering Mr. GODFREY COLLINS, Mr. HOBHOUSE (Secretary to the Treasury) said: The grant in aid of Irish hospitals (subhead D of the Vote for Hospitals and Charities, Ireland) is £15,850. There is no grant in aid to Scottish hospitals.

TUESDAY, APRIL 5TH.

An Outbreak of Cow-pox.

Mr. BARNES asked the Under Secretary of State for the Home Department whether he could now state the result of his inquiry into the outbreak of cow-pox at Vale Farm, Pinner-road, Sudbury, as a result of which four persons contracted the disease; and whether he could state the decision he had come to with regard to the advisability of extending the Workmen's Compensation Act to cover this and other diseases of a similar nature.—Mr. MASTERMAN replied: The Secretary of State has communicated with the Local Government Board and the Board of Agriculture, and has received reports from which it appears that the outbreak was one of cow-pox. The effects, however, on the workmen, as described in the particulars which the honourable member was good enough to send him, seem to have been exaggerated. The Secretary of State understands that the elder Wigmore was off work three weeks, during which time he received half wages, that he did not go to a hospital, and that he is now recovered; and that the younger Wigmore was only slightly affected and off work for three days. The question of adding this disease to those included in the Workmen's Compensation Act is being considered in consultation with the other departments, and my right honourable friend has not yet been able to come to a decision in the matter.

Fatalities at Hemel Hempstead Workhouse.

Answering a long question put by Mr. MORTON,

Mr. BURNS said: The circumstances connected with the lamentable bathing fatalities which occurred at the Hemel Hempstead workhouse at the beginning of October were most carefully investigated by officers of my department and received my close personal attention. The letters addressed to the board of guardians and to the Workhouse Nursing Association on Dec. 8th indicated the considered conclusions of the department and I have no reason to depart from them. The guardians have now entirely reconstituted the nursing staff and I do not doubt that the action which has been taken will prove effective. I am satisfied that no advantage could result from further inquiry into the circumstances which occurred six months ago and have already received the fullest investigation, and I am not prepared to direct such inquiry. I have, of course, no jurisdiction or responsibility with regard to proceedings before the coroner nor in connexion with the subsequent prosecution.

The Sanitation of Welsh Villages.

Mr. REES asked the President of the Local Government Board whether he had in contemplation any scheme for the improvement of sanitation and water-supply in villages in Wales.—Mr. BURNS answered: It is not the province of the Local Government Board itself to make schemes for the improvement of sanitation and water-supply. Under the Public Health Act, 1875, and other Acts the necessary powers for these purposes are vested in the urban district councils and rural district councils. The Board has sanctioned many loans for such improvements in villages in Wales, and applications for sanction to further loans are under consideration at the present time. The Board is doing what it can to urge and encourage local authorities to carry out such schemes where they appear to be necessary or desirable.

WEDNESDAY, APRIL 6TH.

Deaths in County Asylums.

Mr. CLYNES asked the Under Secretary of State for the Home Department whether he was aware of the grievance felt by relatives of patients who died in the county asylums, and who had been chargeable to boards of guardians, because of the description pauper patient in the notice of death sent out from the asylums; and whether, having regard to the fact that the full cost of maintenance of many such patients had been met by relatives or friends, he would cause to be eliminated the word pauper from the Form (No. 21) of Notice of Death prescribed in the rules laid down by the Commissioners in Lunacy.—Mr. MASTERMAN replied: The terms "private" and "pauper" are in common use to mark a necessary distinction, and as the terms are defined in the Lunacy Acts they could not be changed without legislation. The Secretary of State may point out that although the whole expenses of "maintenance" (as defined by Section 287 of the Lunacy Act, 1890) of patients classed as "paupers" are often met by relatives or friends, these "expenses of maintenance" do not include any charge for the cost of the building in which he is housed. If a rent-charge were exacted, it would mean a payment of about 4*s.* or 5*s.* a week beyond the so-called "maintenance."

BOOKS, ETC., RECEIVED.

AMERICAN MEDICAL ASSOCIATION, Chicago.

New and Non-official Remedies, 1910. Containing Descriptions of the Articles which have been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to Jan. 1st, 1910. Price, paper, 25 cents; cloth, 50 cents.

BAILLIÈRE, TINDALL, AND COX, London. (LEA AND FEBIGER, New York and Philadelphia.)

Protozoölogy. By Gary N. Calkins, Ph.D. Price 15*s.* net.

DAVIS (F. A.) COMPANY, Philadelphia.

Studies in the Psychology of Sex. Volume VI. Sex in Relation to Society. By Havelock Ellis. Price $3.00.

FISCHER, GUSTAV, Jena.

Sammlung Anatomischer und Physiologischer Vorträge und Aufsätze. Herausgegeben von Prof. Dr. E. Gaupp und Prof. Dr. W. Nagel. Heft 8. Die Plasmazellen. Von Dr. Josef Schaffer. Price M.1.20.

Heft 9. Missbildung und Variationslehere. Von Ernst Schwalbe, in Rostock. Pr ce Pf. 80

Heft 10. Regeneration und Transplantation in der Medizin. Von Prof. Dr. Dietrich Barfurth in Rostock. Price M.1.60.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. The Operations of General Practice. By Edred M. Corner, M.A., M.C. Cantab., F.R.C.S., and H. Irving Pinches, M.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Third edition, revised and enlarged. Price 15*s.* net.

LAMERTIN, H., Bruxelles. (MALOINE, A., Paris.)

Le Cancer du Sein et son Traitement Opératoire. Par le Dr. W. Sampson Handley. Édition Française par le Dr. Adrien Lippens. Préface de M. le Professor A. Depage. Price not stated.

LAYTON, CHARLES AND EDWARD, London.

Handy Newspaper List, 1910. Price 6*d.*

UNIVERSITY PRESS, Cambridge.

The Melanesians of British New Guinea. By C. G. Seligmann, M.D. With a Chapter by F. R. Barton, C.M.G., and an Appendix by E. L. Giblin. Price 21*s.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ANNAN, JOHN LAING, M.B., Ch.B. Edin., has been appointed Demonstrator of Anatomy in the University of Bristol.

BIRD, ARTHUR CYRIL, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Sidmouth District of the Honiton (Devon) Board of Guardians.

BURKE, P. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Skibbereen District of the county of Cork.

BURNELL-JONES, HERBERT STANLEY, L.M.S. Lond., has been appointed Assistant School Medical Officer by the Somerset Education Committee.

CLARK, H. A., M.B., M.C. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Snaith District of the county of West Riding of York.

CLAY, R. H., M.D. Edin., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

CORBETT, W. E. M., L.R.C.P. & S. Irel., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

ELKINGTON, J. S. C., M.D. Brux., L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H., has been appointed Commissioner of Health for Queensland, Australia.

GRANT, J. A. S., M.B., B.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Montrose District of the county of Forfar.

HARKNESS, R. C., M.B., Ch.B. Edin., has been appointed House Physician at the Manchester Royal Infirmary.

HAYNES, H. G. L., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Markfield District of the county of Leicester.

JACKSON, G., L.R.C.P. Lond., F.R.C.S. Eng., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

LINDSEY, COLIN D., M.D. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

MORT, S., M.B., Ch.B. Glasg., has been appointed Superintendent of the Edmonton Infirmary.

OLLERENSHAW, ROBERT, M.D. Vict., F.R.C.S. Eng., has been appointed Medical Officer to the Central Branch of the Manchester Royal Infirmary.

PARSONS, LEONARD, M.D. Lond., M.R.C.P. Lond., has been appointed Honorary Pathologist to the Queen's Hospital, Birmingham.

PRICE, ALFRED R., M.B., Ch.B. Edin., has been appointed House Physician to the General Hospital, Birmingham.

PURDY, JOHN S., M.D., C.M. Aberd., D.P.H. Camb., has been appointed Chief Health Officer, Tasmania.

RAMSBOTTOM, J., M.B., Ch.B. Vict., has been appointed House Physician at the Manchester Royal Infirmary.

RASHLEIGH, J. C. S., M.D. Cantab., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

SCRASE, JAMES JOHN SHEAT, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Newton Abbot District by the Newton Abbot (Devon) Board of Guardians.

SOLTAU, A. B., M.D. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

TOMKYS, L. S., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lichfield District of the county of Stafford.

WEBBER, H. W., M.D., M.S. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

WILSON, W. CHEYNE, M.D., C.M. Edin., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

WOOLLCOMBE, W. L., F.R.C.S. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE UNION.—Assistant Medical Officer. Salary £150 per annum, with rations, laundry, and residence.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARNSLEY, BECKETT HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with apartments, board, and laundry.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £100, with apartments, board, and laundry.

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Surgeon.

BIRKENHEAD UNION.—Junior Resident Assistant Medical Officer. Salary £100 per annum, with board, washing, and apartments.

BIRMINGHAM GENERAL HOSPITAL.—Assistant Surgeon. Salary £50 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary at rate of £75 per annum, with board and residence.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—Assistant Surgeon.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon, non-resident. Salary 40 guineas per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £75 per annum, with board, washing, and residence.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon; also House Physician. Salary in each case £80 per annum, with board, washing, and residence.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 a year, with board, apartments, and laundry.

EPSOM, LONDON COUNTY ASYLUM, Horton.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

HAMPSTEAD GENERAL HOSPITAL.—House Physician and House Surgeon, each for six months. Salary at rate of £70 per annum, with board and residence.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton. —House Physician for six months. Salary 30 guineas.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Casualty Medical Officer. Salary £200 per annum, with lunch.

HULL, ROYAL INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board and lodging.

JOHANNESBURG, TRANSVAAL, GOVERNMENT LABORATORIES.—Assistant Bacteriologist. Salary at rate of £450 per annum.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum and board.

LEEDS GENERAL INFIRMARY.—Clinical Pathologist. Salary £300 per annum.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for six months. Salary at rate of £50 per annum, with board.

LEICESTER INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, apartments, and washing.

LEITH HOSPITAL.—Anæsthetist.

LIVERPOOL, STANLEY HOSPITAL.—Two Junior House Surgeons. Salary £70 and £60 per annum respectively, with board, residence, and washing.

MIDDLESBROUGH, NORTH RIDING INFIRMARY. — Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

MIDDLESEX HOSPITAL, W.—Aural Surgeon.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Clinical Assistants for six months.

NEW HOSPITAL FOR WOMEN.—Two House Surgeons (females). Also two Clinical Assistants.

NORWICH, NORFOLK AND NORWICH HOSPITAL. — Assistant House Surgeon, for six months. Salary £20, with board, lodging, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W. — House Physician and House Surgeon for six months. Salary at rate of 50 guineas per annum each, with board and residence.

PORTSMOUTH WORKHOUSE INFIRMARY AND CHILDREN'S HOME.—Second Assistant Resident Medical Officer, unmarried. Salary at rate of £120 per annum, with apartments, rations, &c.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician. Salaries of two former £75 per annum, and of two latter £40 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Resident Medical Officer. Salary £75 per annum, with board, residence, and washing. Also two House Surgeons for six months. Salary at rate of £60 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing. Also Second House Surgeon for six months. Salary £60 per annum, with board, lodging, and washing.

ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with board, lodgings, and washing.

ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist. Also Clinical Assistant.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—House Physician and House Surgeon. Also House Physician and House Surgeon (females). All for six months, with board, lodging, and washing. Also Senior Obstetric Assistant. Salary £50 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Clinical Pathologist. Salary 50 guineas per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Bacteriologist. Salary at rate of £120 per annum, with lunch.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

RUTLAND COUNTY COUNCIL.—County Medical Officer of Health and County School Medical Officer. Combined salary £400 per annum.

ST. GEORGE'S HOSPITAL, S.W.—Assistant Surgeon.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary £60 per annum, with rooms, board, and washing.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TUNBRIDGE WELLS GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £80 per annum, with board, residence, &c.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board, residence, &c.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Locum Tenens Medical Officer, unmarried. Salary 4 guineas per week, with apartments, board, &c.

WESTERN OPHTHALMIC HOSPITAL.—Assistant Surgeon.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary at rate of £80 per annum, with board, rooms, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Kilsyth, in the county of Stirling.

Births, Marriages, and Deaths.

BIRTHS.

CUNNINGHAM.—On March 29th, at 29, Sussex-place, Regent's Park, the wife of J. F. Cunningham, F.R.C.S., of a son.

DICKEY.—On March 21st, at Whitehall-gardens, Gunnersbury, W., the wife of W. Craufuird Dickey, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

GAIRDNER.—On April 3rd, at Pretoria, the wife of John Francis Robert Gairdner, M.B., M.R.C.S., of a son.

WILLIAMSON.—On April 3rd, at Springfield-road, Leicester, the wife of Lieutenant-Colonel J. G. Williamson, R.A.M.C. (retired), of a daughter,

MARRIAGES.

CADDY—PAYTON.—On March 29th, at the British Consulate, Calais, and at the English Church, Adrian Caddy, F.R.C.S., of Calcutta, to Evelyn Mary, fourth daughter of Charles A. Payton, M.V.O., H.B.M.'s Consular Service.

SMITH—DYER.—On April 4th, at St. Margaret's, Westminster, by the Rev. Cecil Knox, M.A., Edwin Smith, M.D. Lond., Barrister-at-law, son of Edwin Smith, retired Collector of Inland Revenue, to Edith Catherine, younger daughter of Henry N. Dyer, both of Balham, S.W.

WILLAN—SHAWYER.—On March 31st, at St. Cuthbert's Church, Carlisle Robt. J. Willan, M.S., F.R.C.S. Eng., second son of John Willan, J.P., Shincliffe, near Durham, to Dorothy Eleanor, second daughter of J. B. Shawyer, Carlisle.

DEATHS.

BELCHER.—On March 23rd, the Rev. Thomas Waugh Belcher, D.D., M.D., M Ch. Dub., F.R.C.P. Irel., Rector of Frampton-Cotterell, Bristol, aged 79 years.

MILWARD.—On March 31st, at Rotton Park-road, Edgbaston, Birmingham, Frederic Victor Milward, F.R.C.S., aged 40 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE STATE AND CHILD LIFE.

"THE securing of a fair chance for our boys and girls touches the future life of the State. Compassion has suggested an increasing provision by the public for the needs of the old, but after all the old belongs to the past; the future rests with the young; and it is unquestionably in our power, as a feature in the system of our civilisation, so to deal with our young people that the miseries which are so marked a feature of our modern life shall be greatly abated." So said Mr. Winston Churchill at Brighton on April 2nd, where the Home Secretary had an opportunity of seeing the practical work of the Brighton Police-aided Scheme for Clothing Destitute Children, an excellent undertaking of which we have made previous mention at different times. During the winter months the police frequently observe children insufficiently clothed in the streets, and exposed to consequent danger and suffering. The constable takes the names and addresses of these children and reports the matter to the superintendent of his division. The homes of the children are then visited by the police, and if it is found that the father is in employment, earning sufficient to provide clothing for his children, he is told to have them properly clothed at once or he will be prosecuted under the Prevention of Cruelty to Children Act. But if it is found that the parents are out of employment and the case is a deserving one, an allocation of suitable clothing is made, and the children are told to attend at a building used by the police as a wardrobe where the clothing is distributed. Before distribution each article is stamped, and a copy of that stamp is supplied to the pawnbrokers with a view of preventing the clothing being improperly dealt with by unscrupulous persons. But the work has not ended here. In the course of inquiries respecting little children it has been found that there are families with young girls ranging from 14 to 19 years of age, whose parents can scarcely feed, much less clothe them. They are unable to gain employment, there being no factories in Brighton, and the only course open for them is to enter domestic service. Here also the police have, as it were, filled the void. After the strictest inquiry many have been provided with a servant's complete outfit, and, what is more, with a situation. Since February, 1904, when the scheme was initiated, no fewer than 4829 children have been clothed and 188 young girls placed in domestic service.

Mr. Churchill saw 80 ragamuffin boys and girls transformed into well-dressed children, well-dressed, be it said, with due regard to health rather than appearance' sake, particular attention being paid more to the under garments than the outer ones. The Home Secretary expressed his admiration for the scheme, and said he was not without hopes that Sir Edward Henry might see his way to extend it to the great metropolitan area. The scheme, Mr. Churchill said, opened up a new sphere of police activity and not only gave a powerful influence to social work, but would, he thought, enhance the popularity of the police force generally.

INFANT MORTALITY AND THE "SOOTHER."

To the Editor of THE LANCET.

SIR,—Dr. Burnet has done good service in bringing this important subject under notice, and I trust you will give effect to his recommendation and allow the matter to be discussed in your columns. Its consideration is all the more urgent when we remember that summer will soon be here again, at which time we may hope to be favoured with some hot weather. While the use of the rubber "soother" and the long-tube feeding-bottle is to be condemned at all times, the evil is much greater during the warm season.

It is impossible to describe in detail the possible bad effects that may supervene when the articles just mentioned are employed, but it can hardly be doubted that they play some part in causing the deaths of many infants, to say nothing of the local injuries and disturbances to general health that may accrue to their use. For instance, it is not improbable that the "dummy-teat" may aid in the spread among infants of such diseases as enteric fever, zymotic enteritis, tuberculosis, &c., while in the hot weather of summer it is most difficult to keep the long-tube feeding-bottle clean, and, if not clean, rapid multiplication of innumerable bacteria takes place within the tube. It can easily be understood that gastro-enteric disturbances and much ill-health may arise from this cause.

As to the best means of dealing with the matter, I am at one with Dr. Burnet in believing that the manufacture and sale of the articles should be forbidden. Some little time ago I saw recorded the fact that in one of the countries on the Continent the sale of long-tube feeding-bottles had been prohibited by law. Such a recommendation as that just mentioned is, therefore, quite within practical politics, but I am afraid it is hopeless to expect any legislation in this matter in the immediate future.

In the meantime we must adopt other means to try to mitigate the evil, and in my opinion some good might be done by educative measures. While I do not think that the distribution of printed leaflets should be neglected, I doubt if they will do much good. The chances are that such leaflets will not be read by the class of persons who are the worst offenders. The suggestion that large posters containing warnings of the risks involved should be displayed is admirable, for if conspicuously placed they would certainly attract the attention of the public. Much more, however, can be done by verbal instruction, which could be given through the medium of various officials. With the adoption of the Early Notification of Births Act (1907) by a local authority one or more lady health visitors are appointed, and these ladies in the course of their visitations can distribute much valuable information regarding feeding-bottles and "soothers." In some districts the work of these ladies has been very successful, and many of the mothers, especially the younger ones, not only eagerly look forward to future visits from these ladies, but also endeavour faithfully to carry out the instructions received. Members of hospital staffs, district nurses, and those engaged in charitable work can also assist. Medical practitioners should take every opportunity of pointing to the dangers likely to arise. There is a good deal of truth in Dr. Burnet's assertion that they are often remiss in this respect, for they too frequently maintain a position of masterly inactivity. They must expect rebuffs, because in many instances, when the advice is tendered the information is received with the utmost incredulity. While it must be admitted that the evil is greater among the poor it is unfortunately true that those in good positions are not blameless. Some amelioration might be expected if the educated classes could be made to realise their error and could be persuaded to assist in educating the ignorant by themselves setting the example. Education by popular lectures and the instruction of the senior girls in all schools in the management of infants must not be forgotten. The latter can hardly be over-estimated, for is it not the case that many of these girls on leaving school are given the charge of their baby brothers and sisters, while in populous districts especially a number become mothers at a very early age?

Personally, I have not experienced much difficulty in persuading mothers to give up using the long-tube bottle, but it has been otherwise with the rubber "soother." The use of the "soother" cannot be supported on medical grounds, and it may be remarked that if an infant is not accustomed to have a "comforter" he or she will never miss it. It might be an excellent plan if among the poor an arrangement could be made so that long-tube feeding-bottles would be exchanged for boat-shaped or other more suitable varieties, a practice that is in vogue in some children's hospitals.

The matter could be dealt with indirectly in various ways, but space forbids my traversing these by-paths, however interesting that might be. From what I have said it will be apparent that I believe that some good might follow a vigorous campaign of education, but, in conclusion, I would again submit that the most satisfactory remedy would be the prohibition by Act of Parliament of the manufacture and sale of long-tube feeding bottles and rubber "soothers."

I am, Sir, yours faithfully,

Edinburgh, March 22nd. JOHN ALLAN.

THE SUGGESTED COMMUNICATION OF LEPROSY BY MEANS OF CAVIARE.

A NOTE in the *Torg.'Prom. Gazeta* of the Russian Government says that the Medical Council, in view of an article that has appeared in an American paper alleging the possibility of the spread of leprosy in America from Russian caviare, declares that "after a detailed examination of the question on all sides there is not the slightest ground for ascribing the rôle of 'leprosy disseminator' to caviare, the more so in that it is mostly the poor who suffer from leprosy and they never use caviare; and further, in scientific works by various authorities who have investigated this disease there is no word of the bacillus of leprosy having been found in fish caviare."

EXPLOSIVE COUGH MIXTURE.

To the Editor of THE LANCET.

SIR,—Reverting to recent correspondence in THE LANCET relative to "An Explosive Cough Mixture," I have read with interest the annotation in your issue of March 26th relative to spirit of nitrous ether and impure gum in mixtures. However, I have learned that even without the nitrous spirit a mixture may be explosive if it contains mistura amygdalæ.

I recently had the pleasure of a visit from my old friend Sir Francis R. Cruise who spoke on this subject. He tells me that he formerly prescribed such a cough mixture, which he derived from the late Sir William Jenner. The formula was as follows: Tinct. camph. co., syrupi scillæ, āā ʒiii.; aeth. chlorici, ʒii.; ext. liq. glycyrrhizæ, ʒss.; potassæ chloratis, ℈ii.; mist. amygdalæ, ad ʒviii. A tablespoonful when cough is troublesome. Sir Francis Cruise adds that in many cases in his experience this mixture when kept in a warm room for a few days exploded—sometimes expelling the cork and at other times bursting the bottles.

In one case an eminent Church dignitary was rudely wakened from sleep by so violent an explosion that he feared an earthquake. On

lighting a candle he found it was only the bottle containing his cough mixture that had blown up! Another case ended more seriously. A lady had a bottle with similar contents corked in her hand when it exploded, and a fragment of glass opened the radial artery which had to be tied by operation under ether.

Needless to say, Sir Francis Cruise gave up *that* prescription, but found that if the mist. amygdalæ was omitted and another menstruum used, such as infusum lini, aqua chloroformi, &c., no explosion followed.

I am, Sir, yours faithfully,

Dublin, March 29th, 1910. NINIAN M. FALKINER.

THE NEW EXAMINATION HALL OF THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.

A RECENT number of the *Building News* contained illustrations of the designs which gained the first two premiums awarded in the recent competition for the new "Conjoint" Examination Hall to be erected in Queen-square. Mr. T. E. Collcutt, F.R.I.B.A., who acted as assessor in the competition, awarded the first premium to Mr. Andrew N. Prentice, F.R.I.B.A., and the plan and elevation which he submitted are also published. The following description is given of the new buildings:—

> "The scheme is planned to form a compact block on the front of the site. The students enter on the basement level at the rear, near their cloakrooms, and do not confuse with the official business of the ground floor. The administrative portion of the buildings has been placed to the front of the site, so that callers can reach either of these rooms without mixing in the general circulation of students. The waiting-hall is placed at the back, in communication with both staircases. The entrance corridor is so arranged that these staircases can be reached from the main entrance without entering the waiting-hall when the *viva voce* students are there. The large examination halls have been placed along the front of site with the smaller examination halls, on a central axis with them. This allows the rooms to be easily supervised when they are used jointly. Externally, the building is designed to harmonise with the surroundings, and is treated in an early Georgian style adapted to modern requirements as to height. It is proposed to use red bricks with the lower storey, cornices, and window dressings, &c., in Portland stone. A little sculpture is introduced. It is proposed that the small figures in the frieze should carry instruments suggesting the nature of the building, and should be in low relief."

TANNIN IN TEA.

To the Editor of THE LANCET.

SIR,—Old superstitions seem to die hard. I see in THE LANCET of March 26th an account of a new kind of teapot, designed to exclude tannin from the infusion. The object of doing so is not very clear. I am aware there is a prejudice against tannin in tea, though why I could never ascertain. Personally I prefer tea with a fair amount of tannin, and I think the taste of most people is the same, though they fancy it is more wholesome without it. I have never known tannin to do any harm to man, woman, or child. On the other hand, it is a useful astringent and antiseptic to the mucous membrane. We take tannin lozenges, we paint the throat with glycerine of tannin, we take tincture or infusion of cinchona and port wine (some of us) without protest. It is only when it happens to be in tea that we fancy tannin is injurious. Surely it is the theine, not the tannin, that causes insomnia and other nerve symptoms in tea-drinkers. There is a firm now selling coffee from which all the caffeine has been extracted. I presume they will soon do the same for tea. If they do I hope they will at least leave us the tannin. Tea without theine and without tannin will be rather poor stuff, undistinguishable to the uninitiated from unadulterated or slightly shaded hot water.

I am, Sir, yours faithfully,

London, S.W., March 28th, 1910. J. FOSTER PALMER.

STANDARDISATION OF BREAD.

THE Bread and Food Reform League has published another pamphlet on the "Standardisation of Bread," again urging the necessity of securing purity from adulteration and abolition of injurious chemical processes in preparing flour and bread, and the establishment of a standard for what is sold as household bread not only with regard to flesh-forming materials but also with respect to mineral substances. An analysis of flours from several districts made for the league by Mr. C. G. Moor, F.I.C., is given, showing a great deficiency of these important substances, which were considerably below the recognised standard for ordinary white flour, and it is stated that the old-fashioned household flour, advocated by the league, containing 80 per cent. of wheat, retaining the germ and the semolina, has 55 per cent. more mineral matter. Wholemeal is said to have 247 per cent. more, but as the old-fashioned household flour has a small amount of woody fibre and produces cream-coloured, well-aerated bread it may meet with approval from those who now object to brown bread. The council of the league directs attention to the fact, to which we have given publicity, that the brown bread, sometimes called "black bread," used in Germany is found to be more nourishing and sustaining than over-refined white bread. As a supply of pure bread, containing a sufficient supply of all the elements of nutrition, is of vital national importance, the Council of the Bread and Food Reform League urges the necessity of making every effort to raise the standard of bread so that it may become a more complete and healthier food for all classes, and better deserve the title of the staff of life. The address of the honorary secretary of the Bread and Food Reform League is 5, Clement's Inn, Strand, London, W.C.

TERATOLOGY IN ITALY.

FROM no country could Geoffroy St. Hilaire's classic treatise on monstrous births be more richly supplemented than from Italy—except, perhaps, from Spain, which (according to the Maestro Rossini) has earned the gratitude of all Italians by saving their nationality from the reproach of being the most backward in Europe. Ignorance, superstition, and life under hard conditions such as these countries are still subjected to seem to favour what the older teratologists used to call "lusus Naturae" (Nature's freaks or practical jokes). The latest of these (a rather gruesome one) is reported from Avellino, some 50 miles south-east of Naples, where a peasant woman, Bianca Fierro by name, aged 25 years, gave birth to a female "creatura" on the evening of March 22nd. This creature, the outcome, it seems, of "illicit amours," could, according to the medical reporter, "give points to Victor Hugo's Quasimodo." Its mouth was that of a reptile, portentously wide; the nose bifurcated; the cranium compressed; the ears of great size; one eye placed below one of the ears, the other in the middle of the forehead; one leg attached to the immediate neighbourhood of the umbilicus, and the other below the spine "in senso inverso" (turned the wrong way). The "creatura" lived for some 24 hours, emitting "grida stranissime" (very strange cries), and, naturally enough, "ha vivamente impressionato questo popolino" (made a vivid impression on the population of Avellino). Its destination, of course, is not the "campo santi," but the local museum—if not that of the Neapolitan school, from one of which an interesting paper on the phenomenon may shortly be expected.

ALCOHOLISM IN RUSSIA.

THE *Novoe Vremya* recently welcomed a proposal of the Minister of Finance (at the instigation of Professor Bechterieff) to allot 100,000 roubles (£10,625) to found a clinic for alcoholics in connexion with the Psycho-Neurological Institute. Hitherto practically nothing had been done in Russia to counteract the drink habit, which is said to be responsible for 200,000 deaths in the Empire each year. The charts shown at the recent exhibition at the institute in question displayed the curve of the progress of "paralysis of the brain" in the community, and this was closely proportionate to the increasing consumption of drink per head of the population. Phthisis, moreover, which destroys 700,000 people in the year, very often has its origin in alcoholism. M. Tchelischeff, a member of the Duma, said in a speech that only 40 per cent. of the recruits called up in 1909 were fit for military service, and he had a letter from one officer saying that of all the recruits that came before him at the last requisition only 8 per cent. were not drinkers, whilst 30 per cent. were in such bad health as to pass into the Reserve inside three months, whereas 20 years ago only from 4 to 8 per cent. were so released in that period of time. Only a few private institutions are available for the treatment of alcoholism, and their charges are very high. It cannot be wondered at that many seek refuge in quack establishments in hope of cure. Self-taught hypnotists without any medical knowledge perform their manipulations over whole parties of patients at a time. It is said of one such St. Petersburg quack that he causes parties of 15 persons of both sexes to lie down side by side, then performs his "passes," and leaving them there two hours goes into another room to repeat the performance over another party. The proposed new clinic will include hypnotic suggestion in its treatment, and the removal of bad cases after treatment to a sanatorium for dipsomaniacs is contemplated.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 6th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 31	30·54	E.	...	91	47	36	35	39	Fine
April 1	30·42	N.E.	...	89	50	35	37	41	Fine
,, 2	30·18	E.	...	86	51	37	41	42	Fine
,, 3	29·83	W.	...	86	53	37	36	38	Overcast
,, 4	29·63	N.	...	86	50	38	39	42	Cloudy
,, 5	29·64	W.	0·07	69	51	42	42	42	Raining
,, 6	29·82	N.E.	0·01	52	49	40	41	43	Overcast

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—W. J. Gow, G. F. Blacker) at 15, Cavendish-square, W.: at 7.45 P.M.

Specimens:

Dr. A. E. Giles: Large Fibroid of Cervix.

Paper:

Dr. Henry Jellett: The Place of Cæsarean Section in the Treatment of Placenta Prævia.

FRIDAY.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton) at 15, Cavendish-square, W.: at 8.30 P.M.

Paper:

Dr. Howard Pirie: The Disappearance of Enlarged Glands in Lymphadenoma under Treatment by X Rays.

Discussion:

The Relative Value of the Various Types of High Tension Transformers used for the Production of X Rays (opened by Dr. Reginald Morton).

Demonstrations:

Dr. Howard Pirie: A Pocket Stereoscope for Use with X Ray Negatives.

Mr. A. J. H. Iles: A New Simple Stereoscope.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8 P.M., Clinical Meeting.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M.. Discussion on Vaccine Therapy (introduced by Dr. H. White).

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, S.W.

WEDNESDAY.—8.30 P.M., Lieut.-Colonel H. E. Deane (R.), R.A.M.C.: Records of Pulse-rates after Exercises of Various Kinds in Trained and Untrained People (illustrated by sphygmograms).

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Dr. L. Williams: Surgeons, some Mortals, and the Climacteric.—Dr. E. I. Spriggs: The Treatment of Indigestion.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. K. Fowler: The Diagnosis, Prognosis, and Treatment of Pneumonia.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY.—3.45 P.M., Lecture:—Dr. Abercrombie: Clinical Cases.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (13th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (14th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (16th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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